

**STATE OF GEORGIA
BEFORE THE
GEORGIA PUBLIC SERVICE COMMISSION**

Georgia Power Company's	)	Docket No. 56002
2025 Integrated Resource Plan	)	
	)	
and	)	
	)	
Georgia Power Company's 2025 Application	)	Docket No. 56003
for the Certification, Decertification, and	)	
Amended Demand-Side Management Plan	)	

**DIRECT TESTIMONY OF PETER HUBBARD (GCES)
FINDING MATERIAL FLAWS IN GEORGIA POWER COMPANY'S
2025 INTEGRATED RESOURCE PLAN,
WITH ALTERNATIVE SOLUTIONS BASED ON MODELED ANALYSIS OF GEORGIA**

May 2, 2025

Direct Testimony of Peter Hubbard on Behalf of GCES
Finding Material Flaws in Georgia Power Company's
2025 Integrated Resource Plan,
With Alternative Solutions Based on Modeled Analysis of Georgia

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

2 A. My name is Peter Hubbard. I am a Clean Energy Advocate with the Georgia
3 Center for Energy Solutions, Inc. (GCES). The website is www.Georgia-CES.org
4 where information can be found on Georgia power plans dating back to 2019. My
5 business address is 55 Leslie Street SE, Atlanta, Georgia 30317.

6
7 **Q. PLEASE DESCRIBE YOUR ORGANIZATION.**

8 A. GCES seeks to develop an economic and regulatory framework to transition
9 Georgia's electric, transportation, buildings, and agriculture sectors to a 100%
10 clean energy (zero-carbon) future in an equitable, reliable, resilient, sustainable,
11 rapid, and economically efficient manner and in furtherance of the public benefit.
12 GCES was incorporated in 2019 to intervene in the Georgia Power Company
13 (GPC or the Company) Integrated Resource Plan (IRP) in that year. GCES has
14 since intervened in four GPC IRPs including this one to advocate for cheaper,
15 cleaner, more reliable solar, batteries, wind, demand-side management, and
16 capacity sharing with neighbors.

17
18 **Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL**
19 **EXPERIENCE.**

20 A. In education, I hold two Bachelor of Science degrees in Physics and Mathematics
21 and one Bachelor of Arts degree in French from the University of Memphis in
22 Tennessee. I also hold a Master of Arts degree in International Relations and
23 International Economics with a Concentration in International Energy and
24 Environment Policy and a Specialization in Quantitative Methods from the Johns

1 Hopkins University School of Advanced International Studies in Bologna, Italy
2 and Washington, DC.

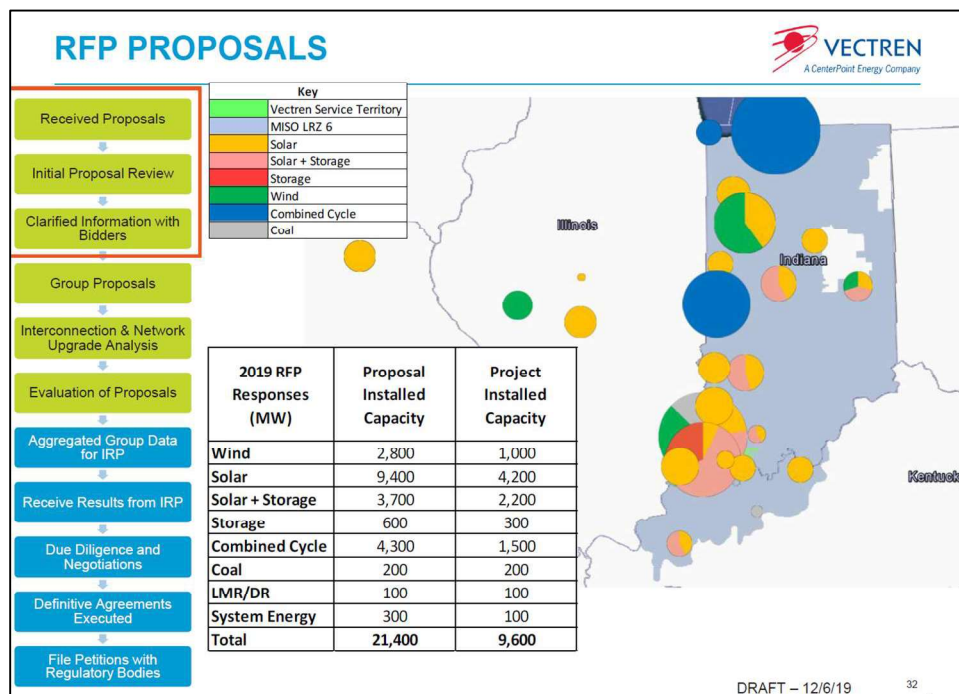
3 In professional experience, I was in energy management consulting for more than
4 a decade (Siemens Energy Business Advisory, AFRY Management Consulting)
5 focused on electric utility IRP project management, electricity market modeling
6 and analysis, natural gas market modeling and analysis, commodity price
7 projections, stochastic risk analysis, scenario development, strategy, capacity
8 expansion modeling, production cost modeling, renewable energy project
9 evaluation, due diligence for acquisitions and mergers, and more. I have extensive
10 experience in solar and battery project development at the utility-scale in
11 organized wholesale electricity markets (ERCOT, SPP, MISO) as well as at the
12 DER-scale in Georgia. I have more than 15 years of professional experience in the
13 energy sector, with a particular focus on Integrated Resource Planning for electric
14 utilities. I helped to prepare Puerto Rico's post-Maria power grid rebuild plan. I
15 worked with many utilities to develop their IRP including Orlando Utilities
16 Commission, Vectren, TVA, National Grid, and many more. I am deeply
17 experienced in energy systems modeling and I bring that experience directly to
18 this testimony with modeled scenario analysis of Georgia's power grid.

19
20 **Q. HOW DOES YOUR EXPERIENCE IN IRP WORK INFORM THIS**
21 **GEORGIA POWER COMPANY 2025 IRP PROCESS?**

22 My experience allows me to see how GPC manipulates the IRP process to arrive
23 at solutions that are lucrative for shareholders of their parent company. As an
24 example, GPC is withholding information from its recent Request for Proposals
25 (RFP) that it deems competitive, such as the mix of resources that bid into the
26 RFP. GPC's theory of the case is that providing such data will result in the release
27 of competitive information that will lead to higher costs for electricity customers.
28 In fact, utilities divulge such RFP information all the time with no adverse effect.
29 See **Exhibit GCES-13** for another utility's (Vectren) public stakeholder meeting
30 presentation as part of its 2019/2020 IRP. I directed the work for this IRP. Pages

31-37 of the presentation show RFP results that Vectren provides freely to the public. There was no adverse effect that resulted from Vectren's sharing this RFP information with the public. Georgia Power Company could do the same but it chooses secrecy. This is just one example of how my experience in IRP work helps to uncover exclusions and reveal the levers the GPC pulls to arrive at results that favor gas-fired generation. I described many more such examples in my testimony for the GPC 2023 IRP Update and at www.Georgia-CES.org/2023-irp-update.

Exhibit GCES-13 – Public RFP Results as part of the Vectren RFP





Source:

<https://midwest.centerpointenergy.com/assets/downloads/planning/irp/Dec%2013%20IRP%20Stakeholder%20Meeting%20Final%20Draft%2012-6-19.pdf>

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

A. I have previously filed direct testimony related to Georgia Power Company's 2019 IRP before the PSC in Docket No. 42310. I have also filed direct testimony in the 2022 IRP (Docket No. 44160) and in the 2023 IRP Update (Docket No. 55378).

Q. ARE YOU SPONSORING ANY EXHIBITS IN SUPPORT OF YOUR TESTIMONY?

A. Yes. I am sponsoring one exhibit that is appended, Exhibit GCES-1 résumé for Peter Hubbard, and all other exhibits are embedded in this testimony.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of the Georgia Center for Energy Solutions and on behalf of under-represented hardworking Georgians whose power bills have skyrocketed.

1 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS**
2 **PROCEEDING?**

3 A. The purpose of my direct testimony is to: (1) provide modeled analysis of the
4 Georgia electric grid that demonstrates why this GPC 2025 IRP is flawed and (2)
5 provide alternative solutions. This 2025 IRP is focused on load growth induced by
6 data centers. I harnessed that data center compute power and put it to work
7 analyzing the state power grid in order to have a better power plan for Georgia, as
8 you will see in the modeling analysis to follow.

9 In this testimony and in prior IRP testimony, I lay out the reasoning and substantial
10 documentation for why the this IRP and prior IRPS proposed by Georgia Power
11 Company consistently fails to adequately demonstrate the economic,
12 environmental, and other benefits to the state and to customers of the utility, as
13 required by the Official Code of Georgia Annotated (O.C.G.A.) § 46-3A-2. In
14 addition, the 2025 IRP fails to meet the requirements of Commission Rule 515-3-4-
15 .05, which states that a base case IRP be “based on the most economic and reliable
16 combination of demand and supply-side resources” while “minimizing customer
17 bills, minimizing overall rates and maximizing net societal benefit.”

18 With this testimony I submit in the 2025 IRP docket, I provide modeled analysis
19 of a 20-year electric generation capacity expansion plan for the Georgia power
20 grid under four scenarios. My analysis strongly demonstrates that a power plan
21 heavily focused on building new gas-fired generation is costlier than alternatives
22 focused on solar, batteries, wind, sharing resources, and demand-side tools. With
23 respect, I recommend that the Commission require the Company to produce a new
24 IRP that fully meets the requirements of Georgia law and the Commission’s rules,
25 and which adequately addresses the significant concerns raised in this testimony.
26

27 **Q. PLEASE DESCRIBE ONE OF THE KEY FLAWS IN THIS 2025 IRP.**

28 A: One key flaw in this 2025 IRP is that 95% of the capacity expansion plan is
29 omitted due to the Company claiming that RFP information is trade secret,
30 whereas other utilities regularly provide such information. As a result and by

1 design, it is difficult to evaluate this 2025 IRP on its merits in a meaningful way.
2 In March, after the IRP was submitted, the Company asked another regulatory
3 body in Georgia that is not the PSC (the Georgia Environmental Protection
4 Division) for permits to build 2.9 GW of new combined cycle gas-fired units at
5 Plant Bowen. Yet this planned natural-gas fired power plant is omitted from the
6 2025 IRP. The Company does this not because it would reveal trade secrets but to
7 benefit its many affiliate companies who are also owned by Southern Company
8 (just like GPC) and who profit handsomely from selling natural gas to GPC to
9 supply half its power generation requirements. To be clear, a new-build gas-fired
10 combined cycle power plant would not be selected in the 2025 IRP if current
11 capital costs were used in the modeling, even under a high load scenario, except
12 in the very last years of the forecast in the 2040s.

13
14 **Q. HOW DID YOU ARRIVE AT YOUR CONCLUSIONS?**

15 A: I used an electricity system capacity expansion and dispatch model to analyze
16 Georgia's power grid over the next 20 years, in order to compare to the 2025 IRP
17 proposed by GPC. In the alternative 2025 IRP analysis that I provide, the
18 Southeastern Regional Transmission Planning (SERTP) region is modeled with
19 results extracted specifically for Georgia, to better isolate state impacts of this IRP
20 modeling for this docket. Four scenarios are modeled: (1) Base Load, (2) High
21 Load, (3) Base Load with Advanced Solar PV and Batteries (meaning lower cost),
22 and (4) High Load with Advanced Solar PV and Batteries. There is also an
23 adjustment upward to reflect current capital costs for new gas-fired generation.
24 The results of the analysis clearly indicate that new-build gas-fired generation is
25 heavily disfavored in the model, whereas solar, batteries, and wind power as well
26 as imports from neighbors are much less costly for the power grid to meet load
27 requirements while maintaining full reliability. The model rarely selects fossil
28 gas-fired generators and only builds a modest amount of hydrogen combustion
29 turbines (H₂-CT) when coal is retired in 2032 and in the 2040s to meet load
30 growth, along with electrolyzers to supply increasingly carbon-free hydrogen.

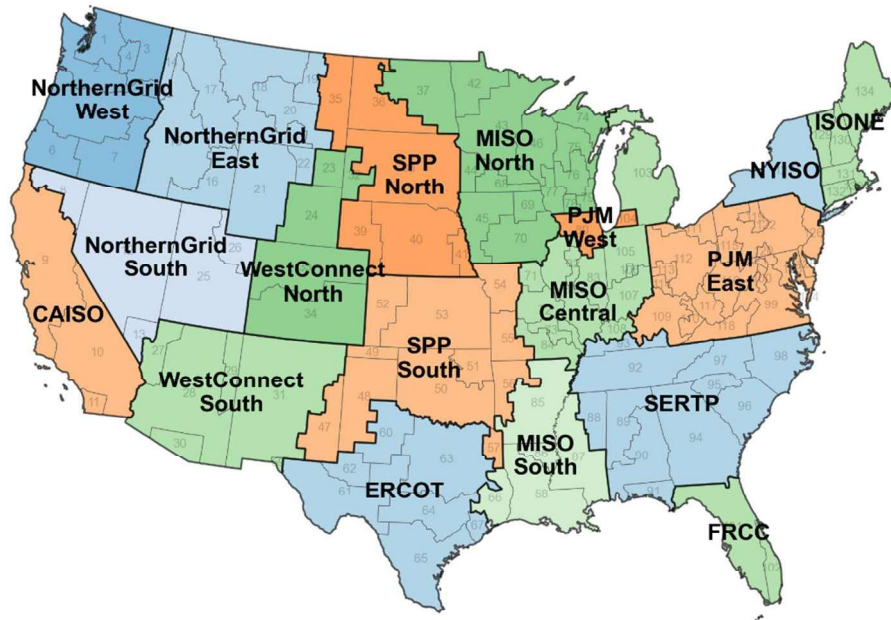
1 **Q: PLEASE DESCRIBE THE ELECTRICITY PRODUCTION COST MODEL**
2 **THAT YOU USED IN YOUR ANALYSIS OF THE GEORGIA POWER GRID.**

3 A: For this analysis of Georgia's power grid, I used the Regional Energy
4 Deployment System (ReEDS) model. ReEDS is a mathematical programming
5 model of the electric power sector developed by the National Renewable Energy
6 Laboratory (NREL). ReEDS combines two optimization modules with a
7 simulation module. One optimization module represents electricity supply, and
8 the other represents end-use energy service demand. The simulation model uses a
9 dispatch algorithm and multiple years of chronological hourly wind, solar, and
10 load data to estimate the contribution of storage, solar, and wind units to capacity
11 and the level of curtailment for such variable renewable energy (VRE) units. The
12 results can be used to explore the impacts of a variety of future technological and
13 policy scenarios on economic and environmental outcomes for power sector or for
14 specific stakeholders. All of the model input and output files are or will be available
15 for download, verification, and reproduction at [https://github.com/Georgia-](https://github.com/Georgia-CES/ReEDS-2.0/tree/GA_2025_IRP)
16 [CES/ReEDS-2.0/tree/GA_2025_IRP](https://github.com/Georgia-CES/ReEDS-2.0/tree/GA_2025_IRP) and at www.Georgia-CES.org/2025_IRP.

17
18 **Q: PLEASE DESCRIBE THE METHODOLOGY AND GEOGRAPHIC**
19 **SCOPE OF THE POWER SECTOR MODELING YOU PERFORMED**
20 **FOR THIS ANALYSIS.**

21 A: The ReEDS model was run at the Southeastern Regional Transmission Planning
22 or SERTP level, which encompasses Georgia Power Company as part of the
23 Southern Company Balancing Authority Area (SOCO BAA), the Tennessee
24 Valley Authority (TVA), and the Carolinas served by electric utilities Dominion
25 Energy, Duke Energy, and Santee Cooper. See **Exhibit GCES-2** for the
26 boundaries of SERTP in the model. Note that imports Georgia receives are from
27 another region within SERTP, in this model. Full results are reported out at the
28 SERTP level, the SOCO BAA level, and the state of Georgia level to facilitate
29 comparison, review, and a focus on Georgia alone (i.e., excluding Alabama Power
30 Company and Mississippi Power Company from the report but not the analysis).

Figure GCES-2 - Map with ReEDS Boundaries for SERTP Modeling



Q: PLEASE DESCRIBE THE SCENARIOS YOU MODELED FOR THIS ANALYSIS IN THE 2025 IRP.

A: I modeled four scenarios for the SERTP region for the time period 2010-2044, where 2010-2024 is a backcast and 2025-2044 is a forecast:

- i. Base Load scenario
- ii. High Load scenario
- iii. Base Load + Advanced Solar PV and Batteries scenario
- iv. High Load + Advanced Solar PV and Batteries scenario

The resulting 2x2 array of scenarios allows for analysis and insight into the new generation resources that are economically selected to be built in Georgia, even as existing generation resources are retired. The High Load scenario results in a 2044 level of energy generation in Georgia that is 36% higher than the Base Load scenario in 2044 (see Exhibit GCES-10 for Georgia load growth). The Advanced Solar PV and Batteries scenarios translate to a steeper cost decline curve and lower future costs for these two technologies as compared to business as usual.

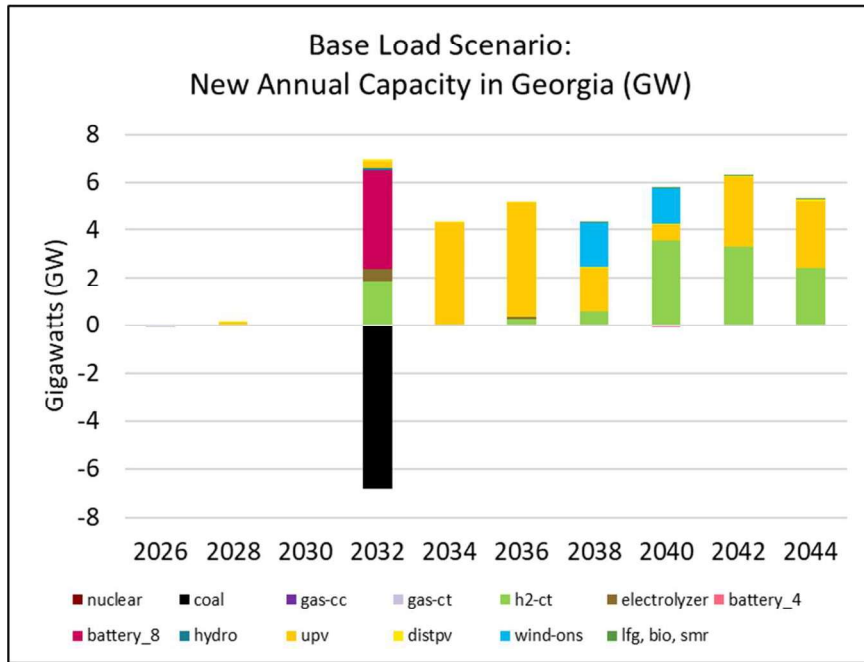
1 **Q: PLEASE DESCRIBE YOUR MODELING RESULTS FOR THE STATE OF**
2 **GEORGIA FROM THE REEDS SCENARIO ANALYSIS YOU PERFORMED.**

3 A: The first set of results for Georgia is the capacity buildout across all four
4 scenarios. See **Exhibit GCES-3** that shows both new build capacity and coal
5 retirements. In the two decade 2025-2044 timeframe corresponding to this 2025
6 IRP, installed capacity in Georgia in the Base Load scenario increases to over 70
7 GW by 2044 with solar at 22 GW, batteries at 6 GW, and wind at 3 GW. There
8 are 2 GW of new hydrogen-fired combustion turbines (H₂-CT) that are built when
9 coal is retired in 2032, and an incremental 10 GW of H₂-CT s are built in the last
10 few years of the forecast (in the 2040s). All coal in Georgia is retired in 2032
11 based on federal regulation that limit emissions from coal-fired electric generating
12 units and that is still in effect as of the date of submission of this testimony. In
13 each scenario, the coal capacity is replaced by batteries, solar, and a measured
14 amount of H₂-CTs paired with electrolyzers. In this way the hydrogen fuel is
15 produced in Georgia and it is increasingly produced with carbon-free solar, wind
16 and nuclear power. Every other year was modeled, but capacity builds would also
17 occur in odd-numbered years, mitigating the large buildout in each year. Solar is
18 the primary resource built in the Base Load + Advanced Solar PV and Batteries
19 scenario, which includes a stronger decline rate in costs for solar and batteries.
20 When more conservative cost figures for solar and batteries are used, the model
21 also selects H₂-CTs when the coal is retired and in the last few years in the 2040s.
22 In the High Load scenarios, wind plays an important role and largely offsets the
23 need for a buildout of H₂-CTs. Fossil gas-fired units are rarely selected except in
24 the last few years, by which time battery storage costs will have declined
25 significantly and could very well replace all future fossil gas-fired new builds and
26 likely create assets that would otherwise be stranded (with revenue less than
27 costs). Except that GPC keeps asking to operate fossil assets long past their
28 economic life is over, as they are proposing to do by keeping coal unit at Plant
29 Scherer running until 2038, despite cutting the maintenance budget years ago
30 (analogous to skipping oil changes and tire rotations for your car).

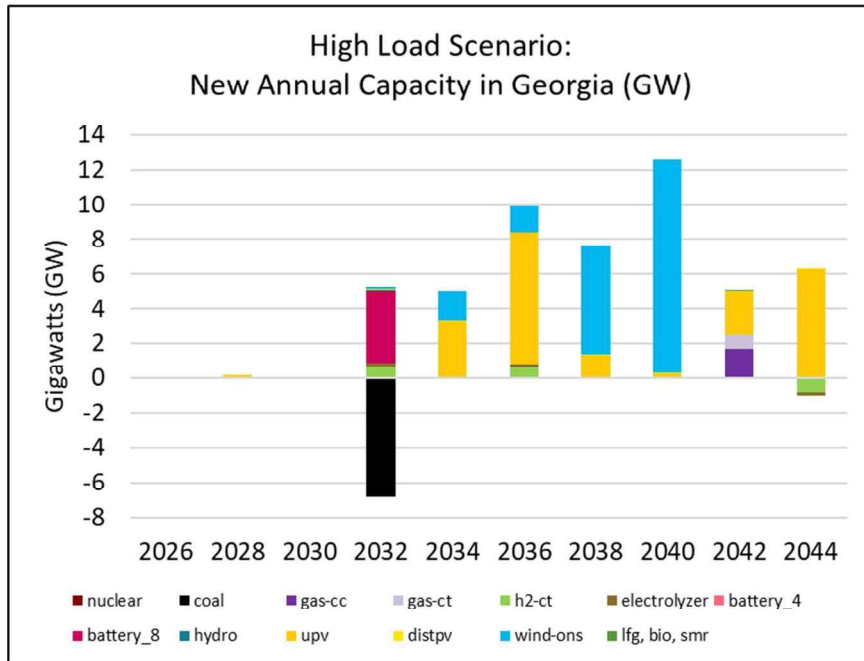
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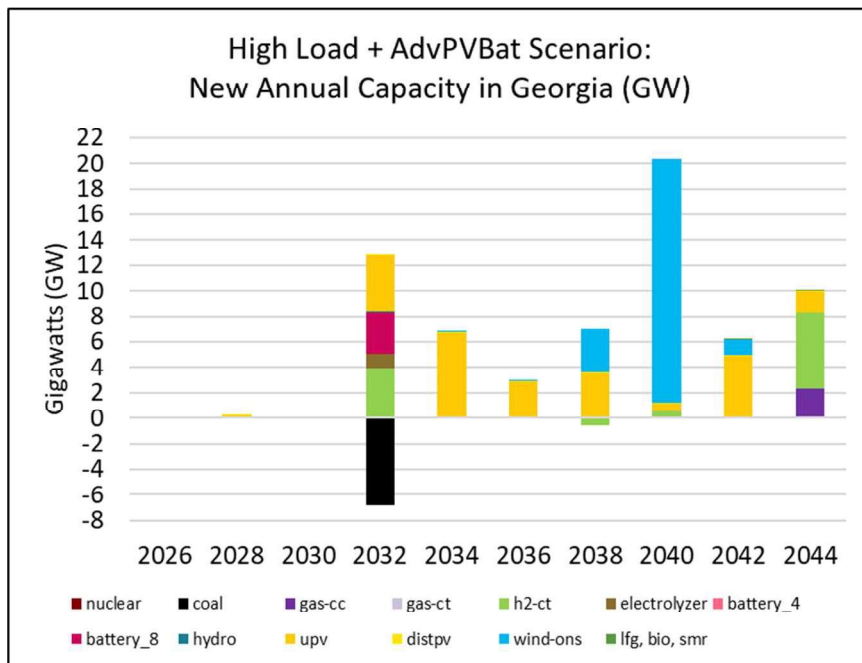
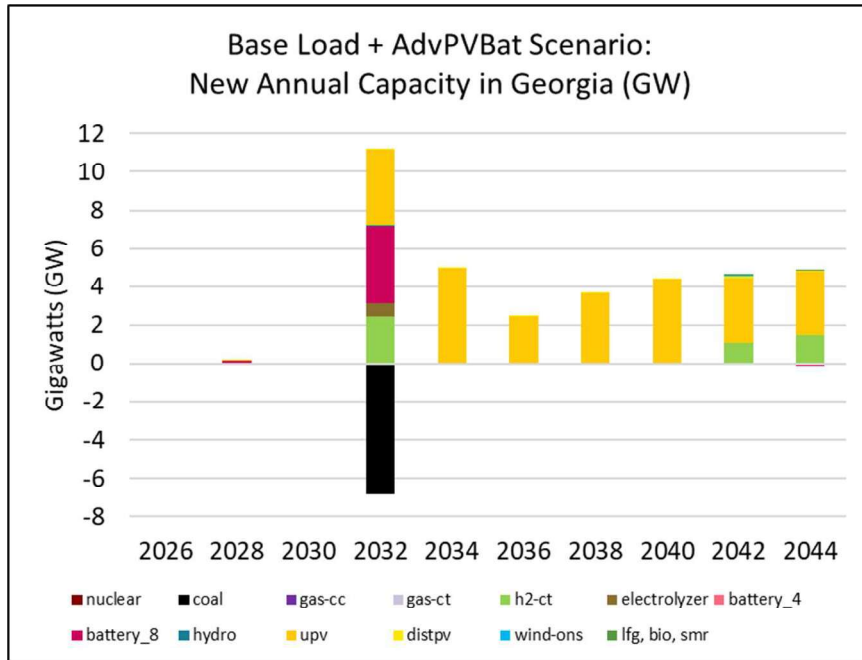
Exhibit GCES-3 - Georgia Capacity Buildout by Scenario

2



3





Q: PLEASE EVALUATE THE GEORGIA POWER COMPANY 2025 IRP.

A: Without a more transparent process for evaluating IRPs proposed by Georgia Power Company that provides sufficient information for analysis, and so long as the Company is obscuring its intentions by leaving out the proposed 2.9 GW combined-cycle gas turbines buildout at Plant Bowen, it is difficult to evaluate

1 this 2025 IRP. We can say that this 2025 IRP goes against the principles of
2 pursuing a diverse resource mix. This plan includes a gas-CC buildout at Plant
3 Bowen that will increase the company's fleet of gas-fired capacity beyond the
4 50% mark and will increase gas-fired generation well beyond the current 40%.
5 We can also say that GPC is underestimating natural gas prices by using a two-
6 year old forecast in this 2025 IRP, public information that is obscured behind a
7 trade secret wall. If GPC were to adjust its assumptions for capital costs of new-
8 gas fired generation and the commodity costs for fossil gas fuel to reflect current
9 market reality, the 2025 IRP would not select for gas-fired power.

10
11 **Q: PLEASE EXPLAIN WHY YOU ADJUSTED UPWARD THE CAPITAL**
12 **COST FOR GAS-FIRED GENERATION IN YOUR MODELING.**

13 A: For new gas-fired generation, both simple-cycle gas combustion turbines (gas-
14 CT) and combined-cycle gas turbines (gas-CC), the capital costs were adjusted
15 upward to reflect current market reality. The conventional view for capital costs
16 in the ReEDS model comes from the NREL Annual Technology Baseline (ATB)
17 review where gas-CC costs are \$1,213/kW in 2025 declining to \$1,024/kW in
18 2044. Gas-CT costs are \$1,084/kW in 2025 declining to \$917/kW in 2044. By
19 contrast, current capital costs in 2025 for new gas-fired generation are more than
20 double what they were when GPC developed its 2025 IRP. See **Exhibit GCES-4**
21 in which the CEO of NextEra, a leading renewable energy and natural gas utility
22 in North America, describes the situation as of March 2025.

23
24 **Exhibit GCES-4:** "Costs to Build Gas Plants Triple, says CEO of NextEra
25 Energy" (source: [https://gasoutlook.com/analysis/costs-to-build-gas-plants-triple-](https://gasoutlook.com/analysis/costs-to-build-gas-plants-triple-says-ceo-of-nextera-energy/)
26 [says-ceo-of-nextera-energy/](https://gasoutlook.com/analysis/costs-to-build-gas-plants-triple-says-ceo-of-nextera-energy/))

Costs to build gas plants triple, says CEO of NextEra Energy

The CEO of NextEra Energy said that gas turbines have a multi-year backlog, leading to soaring costs for new gas-fired power plants. Renewables "are cheap and available right now."



The River Pacific-owned Tracy gas-fired power plant, east of Sparks, Nevada (Photo: Wiki Commons/Ken Lund)

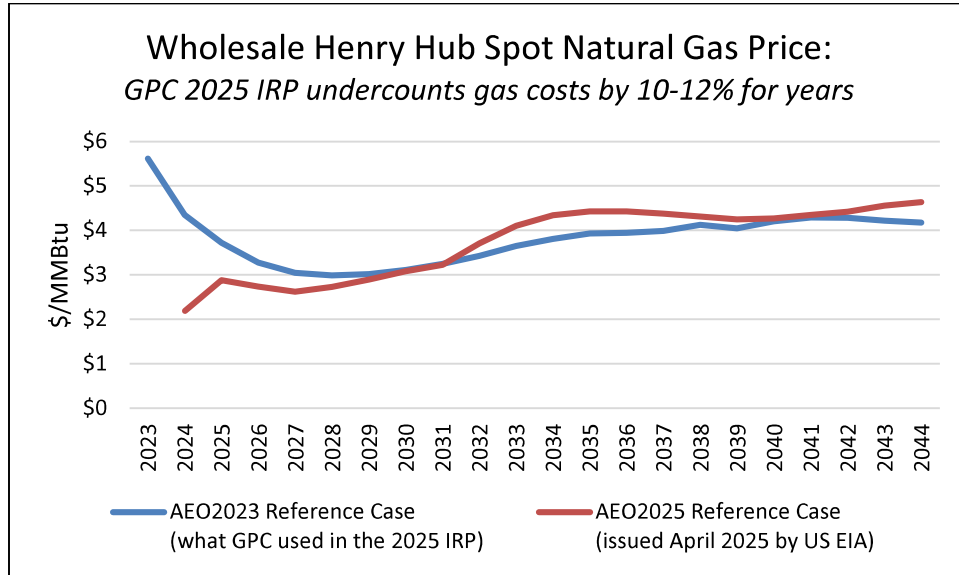
by Nicholas Cunningham | 25.03.2025

He estimated that tariffs have increased the cost of new gas generation from \$2,400 per kW to **\$2,600-2,800 per kW**. Renewable projects — at least those NextEra develops — should not see the same impact, Ketchum said. 5 days ago

Q: PLEASE DESCRIBE HOW NATURAL GAS PRICES USED BY GPC IN ITS 2025 IRP ARE OUTDATED.

A: We know that the natural gas price outlook GPC used is two years out-of-date and substantially below the current 2025 outlook, as shown in **Exhibit GCES-5**. The current outlook also indicates that natural gas prices can rise as high as \$9/MMBtu, more than double what is projected in either the current or prior outlooks. As a reminder, 100% of all fossil fuel costs from natural gas- and coal-fired generation in Georgia are passed onto GPC customers without the Company wearing even a fraction of a fraction of the commodity price risk. GPC reduced its hedging budget in a recent IRP, further exposing consumers to the inherent price volatility of energy commodities and the inflationary pressure of rapidly rising US LNG exports on natural gas prices, in particular.

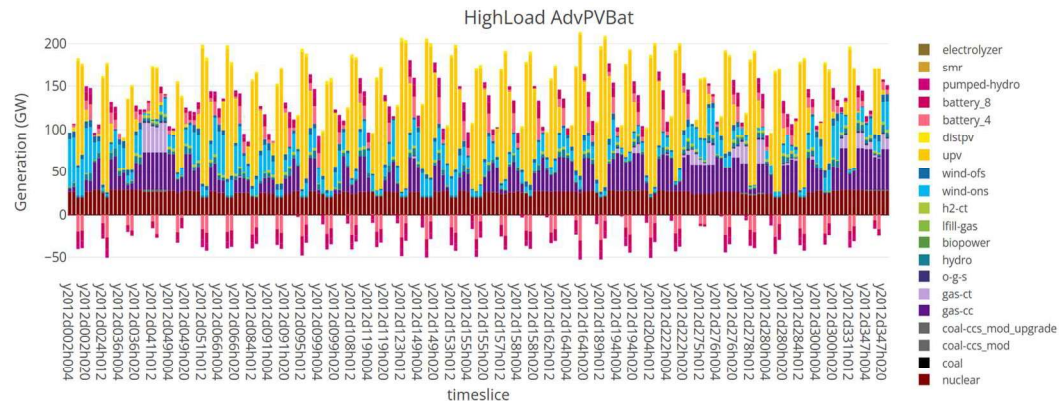
Exhibit GCES-5: Natural Gas Price Forecast Used by GPC vs. Current Outlook
(source: US EIA Annual Energy Outlook (AEO))



Q: PLEASE SPEAK TO THE RELIABILITY OF THE FOUR SCENARIOS THAT YOU MODELED. WERE THE PORTFOLIOS (ALL OF WHICH EXHIBITED ROBUST GROWTH IN SOLAR, BATTERIES, AND WIND) RELIABLE IN TERMS OF MEETING DEMAND FOR ELECTRICITY? IS THERE ANY REASON TO DOUBT RELIABILITY OF SOLAR, WIND, AND BATTERIES IN LIEU OF GAS-FIRED POWER GENERATION?

A: Yes, all of the power generation portfolios for Georgia that were developed as part of the four scenarios exhibited robust reliability performance. **Exhibit GCES-6** demonstrates the most stressful portfolio that was developed under High Load + Advanced Solar PV and Battery scenario conditions and the timeslices used to evaluate reliability. The highest 31 stress days for the weather year of 2012, which was selected because it was a high stress year, are tested against the portfolio in the final year.

Exhibit GCES-6 – Timeslice Analysis of Reliability for 31 High-Stress Days in the HighLoad+AdvPVBat Portfolio at the SERTP level



In addition to ensuring adequate capacity to satisfy long-term planning reserve requirements, the ReEDS model requires operational reliability, i.e. the ability to continue operating the bulk-power system in the event of a sudden disturbance. In practice, ancillary reserve requirements ensure there is sufficient flexibility from supply-side and demand-side technologies to rebalance fluctuations in generation and demand. The ReEDS model represents three types of operating reserve products, including spinning, regulation, and flexibility reserves. The requirement specified for each product in each timeslice is a function of load, wind generation, and solar PV capacity. Technologies providing these reserve products must be able to ramp their output within a certain amount of time. All ancillary reserve requirements must be satisfied in each BA for each timeslice; however, reserve provision can be traded between BAs using AC transmission corridors.

In sum, the various assertions from detractors of renewable energy that solar and wind and batteries cannot power a grid reliably are false. When presented with accurate costs for maintaining reliability with costly fossil fuel gas-fired generation, the model rarely selects for fossil-fuel generation and instead selects for reliable and low-cost solar, wind, and battery storage.

Q: WHAT OTHER RESOURCES COULD GPC USE TO FULFILL THIS EXTRAORDINARY LEVEL OF PROJECTED LOAD GROWTH?

A: Proposed solar, battery, and hybrid solar+battery projects are prolific in Georgia and throughout the SOCO BAA. As of April 26, 2025, the SOCO BAA interconnection queue showed 35,500 MW of projects seeking to interconnect to the grid with new generation and/or storage, all of which could help to meet the 9,000 MW of load growth in this IRP request. See **Exhibit GCES-7**. In Georgia alone, there are 17,770 MW of solar, battery, and hybrid solar+battery projects that could help to meet the ~9,500 MW of load growth in this 2025 IRP request.

Exhibit GCES-7 – Southern Company Active Generator Interconnection Queue

SOCO Generator Interconnection Queue, accessed April 26, 2025		
Tech	State	Megawatts
Solar	AL	2,373
Solar+Battery	AL	2,572
Battery	AL	850
Fossil Gas	AL	1,579
Solar	GA	9,493
Solar+Battery	GA	4,325
Battery	GA	3,953
Fossil Gas	GA	9,014
Solar	MS	1,345
Solar+Battery	MS	0
Battery	MS	0
Fossil Gas	MS	0
Solar	TOTAL	13,210
Solar+Battery	TOTAL	6,897
Battery	TOTAL	4,803
Fossil Gas	TOTAL	10,593
All Tech	TOTAL	35,503
GA Solar and Battery	TOTAL	17,770

Source:

<https://www.southerncompany.info/power-bi/transmission-policy-services/index.html>

Q: WHAT OBSERVATIONS IN SYSTEM COSTS AND ELECTRICITY PRICES IN GEORGIA DID YOU MAKE AMONG SCENARIOS IN YOUR MODELING?

A: Compared to the Base Load scenario, the scenarios with High Load and with Advanced Solar PV and Batteries demonstrate a lower \$/MWh power price in Georgia. This is due to lower cost solar and batteries being deployed and also due to an increase in the utilization of the existing grid (i.e., higher capacity factor). There is a higher system cost to serving particularly High Load, but this can be

offset by deploying more low-cost solar, wind, and battery storage as in the High Load + Advanced Solar PV and Batteries scenario. See **Exhibit GCES-8** and **Exhibit GCES-9** for electricity price and system cost, respectively, and see **Exhibit GCES-10** for the two load assumption outlooks used in the modeling.

Exhibit GCES-8 – Georgia Annual System Electricity Price by Scenario (\$/MWh)

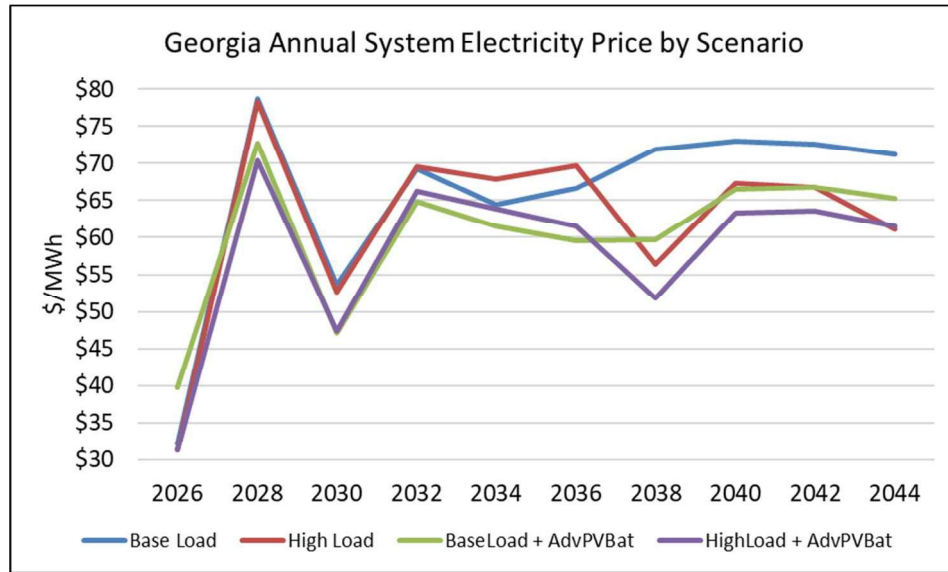


Exhibit GCES-9 – Georgia Annual System Electricity Cost by Scenario (\$B/Yr)

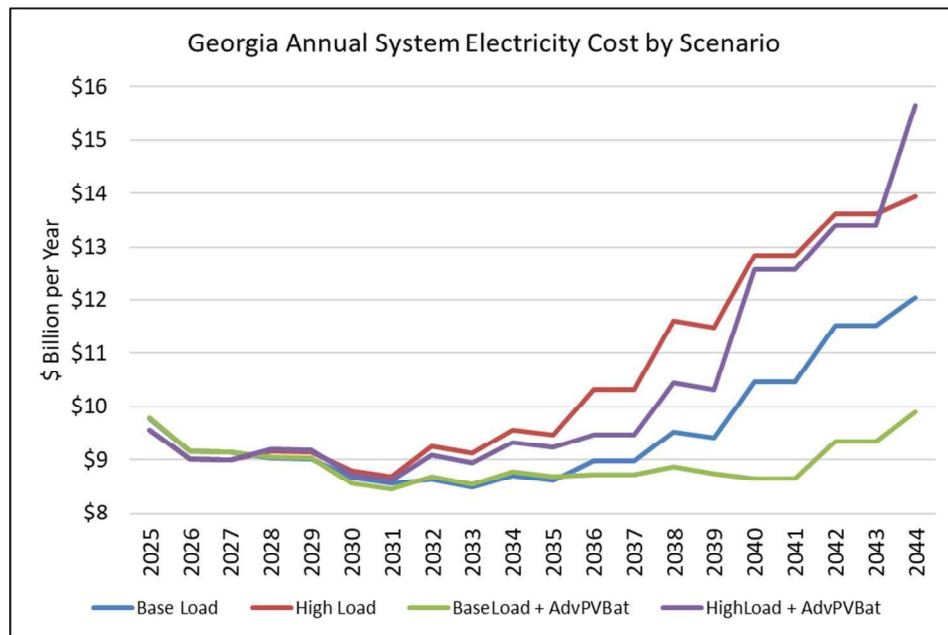
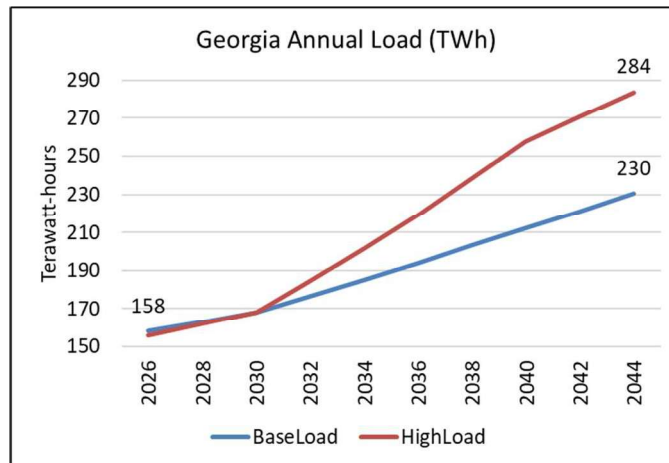


Exhibit GCES-10 – Georgia Annual Load Projections Used in Modeling (TWh)



Q: WHAT LOW-COST RESOURCE SOLUTIONS HAS GPC IGNORED IN ITS 2025 IRP?

A: Georgia Power Company does not include rooftop solar or customer-installed batteries in a meaningful way in its IRP modeling. The “pilot program” for residential rooftop solar was a red herring because it was never a serious proposal. As I demonstrated in the 2023 IRP Update testimony I provided, rooftop solar and especially batteries as well as many other resources can be aggregated into Virtual Power Plants (VPP) that help to avoid the need to build a brand new power plant to meet load growth. There are over 60 commercially deployed VPP programs in North America that are very successful¹, but VPPs are not included meaningfully in this 2025 IRP.

Georgia Power Company also ignores other demand-side management solutions. In a recent report published by the Nicholas Institute for Energy, Environment & Sustainability at Duke University in North Carolina,² they provide detail on what they call curtailment-enabled headroom, which describes how much additional load the grid can absorb using existing capacity with modest, brief usage

¹ “Virtual Power Plant Flipbook,” <https://rmi.org/insight/virtual-power-plant-flipbook/>

² “Rethinking Load Growth: Assessing the Potential for Integration of Large Flexible Loads in US Power Systems,” Tyler H. Norris, Tim Profeta, Dalia Patino-Echeverri, and Adam Cowie-Haskell; <https://nicholasinstitute.duke.edu/publications/rethinking-load-growth>

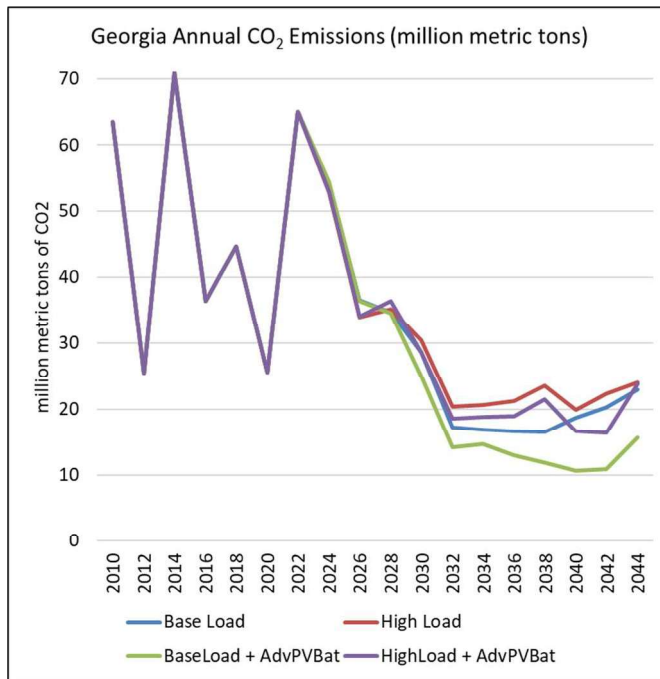
1 reductions from large customers like data centers. The average curtailment time
2 would be two hours, which could facilitate up to 9.3 GW of new large loads on
3 the Georgia grid together with Alabama and Mississippi. To be clear, this is the
4 same level of new generation resources that GPC is asking to build new in this
5 2025 IRP to meet explosive data center load growth. Such new loads would be
6 curtailed an average of 0.5% of their maximum uptime each year (up to 1%), helping
7 the grid meet peak demand, especially during hot and cold periods.

8 In general, GPC disfavors these resources in its IRP in order to drive more
9 business toward natural-gas companies affiliated with GPC, all of which are
10 owned by the same parent company, Southern Company. GPC does not accrue a
11 P&L statement due to natural gas use directly on its books. Rather, the profits
12 flow upward from affiliate companies to the shareholders of Southern Company
13 and the losses flow downward to the customers of Georgia Power Company
14 through the 100% fuel cost pass-through.

15
16 **Q: HOW DO EMISSIONS OF CARBON DIOXIDE (CO₂) FROM THE**
17 **POWER SECTOR CHANGE IN GEORGIA UNDER THE VARIOUS**
18 **SCENARIOS THAT YOU MODELED?**

19 **A:** The ReEDS model was backcast from 2010-2024, which shows considerable
20 variability in CO₂ emissions from the power sector in Georgia. This is due to
21 changes in absolute/relative fuel prices and due to changes in demand like what
22 occurred following the covid-19 pandemic. Under the four modeled scenarios,
23 CO₂ emissions decline the most with advanced solar PV and batteries, since lower
24 costs lead to increase solar and storage deployment that displaces fossil
25 generation. The High Load scenarios also see reductions in CO₂ emissions,
26 mostly through the induced deployment of more low-cost solar, battery, and wind
27 resources to meet higher demand (a la Jevens Paradox). See **Exhibit GCES-11**
28 for projected CO₂ emissions in Georgia from the power sector.

Exhibit GCES-11 – Annual Carbon Dioxide Emissions from Georgia Power Plants



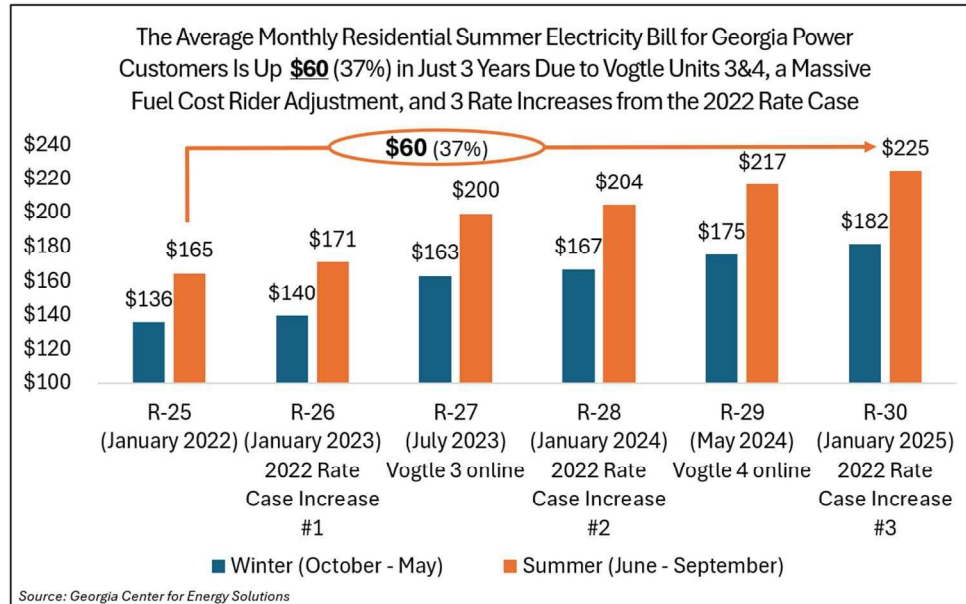
Q. BASED ON YOUR ANALYSIS OF THE 2025 IRP AND THE DISCUSSION ABOVE, WHAT WOULD YOU RECOMMEND THE COMMISSION DO?

A. The Commission should hold Georgia Power Company accountable to the statutory requirements of the O.C.G.A. and the rules of the Commission for this IRP. This means interrogating the Company on the flawed assumptions they based their analysis on, which allow them to manipulate the 2025 IRP toward their desired solution of new fossil-gas fired generation and extending the life of other fossil units such as coal rather than replacing this capacity with low cost solar, wind, and battery storage as well as demand-side management programs including virtual power plants and the concept of curtailment-enabled headroom as described in the Nicholas Institute report.

The direct result of this lack of accountability is that average residential electricity customer bills in Georgia have skyrocketed by \$60 per month in the summer. See **Exhibit GCES-12**. This is a 37% increase in bills in just three years and an increase in power bills—endorsed by the Georgia Public Service Commission—that is even higher than inflation under the Biden Administration

during the same period, all during 2021-2025 when the Georgia PSC District 3 seat did not have an elected representative to fight for residential customers.

Exhibit GCES-12 – Residential Electricity Bills Up \$60/Month in Just 3 Years



The PSC recently passed an 11th hour rule that ostensibly protects GPC customers from additional cost shift on them imposed by new large load customers. The passing of this rule targeting a cost shift implies that cost shifting was occurring before this rule, and in fact the PSC only responded when Robert Baker published his op-ed in the local newspaper.³

Q. PLEASE PROVIDE A CONCLUDING SUMMARY OF YOUR DIRECT TESTIMONY.

A. In this direct testimony, I provide the results of a rigorous, modeled, IRP-grade framework analysis of the future power grid in Georgia that I prepared on behalf of www.Georgia-CES.org and on behalf of residential customers of GPC. I use

³ “Data centers will drive up electric rates for Georgians,” Robert Baker opinion in December 6, 2024, AJC, <https://www.ajc.com/opinion/opinion-data-centers-will-drive-up-electric-rates-for-georgians/QVFJCW76MVBSBBEWIGTGyHOZUM/>

1 four potential future scenarios in a sophisticated capacity expansion and
2 production cost model to describe how fossil-gas fired generators are rarely if
3 ever selected when the appropriate economics are applied to their capital costs. I
4 explain that Georgia's power grid is reliably served at lower cost when there is a
5 robust and rapid deployment of solar, wind, and battery storage resources. I
6 describe some of the profound flaws in Georgia Power Company's 2025 IRP.
7 Finally, I provide solutions that would lower costs for hardworking Georgians and
8 hold accountable the monopoly electric utility to a power plan that clearly follows
9 the law in Georgia, which is not what the Company delivered in this 2025 IRP.

10
11 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

12 **A.** Yes, at this time.

VERIFICATION

The undersigned, Peter Hubbard, affirms under the penalties of perjury that the answers in the foregoing Direct Testimony in Docket No. 56002 & 56003 before the Georgia Public Service Commission are true to the best of his knowledge, information, and belief.

Peter Hubbard

Peter Hubbard

Georgia Center for Energy Solutions