

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

In Re:

**Georgia Power Company's 2023
Integrated Resource Plan**

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)

DOCKET NO. 55378

**DIRECT TESTIMONY OF ANJALI G. PATEL
ON BEHALF OF
SOUTHERN ALLIANCE FOR CLEAN ENERGY**

FEBRUARY 15, 2024

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.**

3 A. My name is Anjali G. Patel, and I am the Vice President for Clean Energy with David
4 Gardiner and Associates (DGA). Our firm is focused on helping our clients develop
5 strategic solutions to address the climate crisis and accelerate decarbonization in the
6 sectors principally responsible for emitting greenhouse gasses. We support a wide range
7 of public and private clients and multistakeholder organizations. My business address is
8 3100 Clarendon Ave. Arlington, VA, 22201.

9 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

10 A. I am testifying on behalf of Southern Alliance for Clean Energy (“SACE”).

11 **Q. PLEASE SUMMARIZE YOUR RELEVANT WORK EXPERIENCE AND**
12 **EDUCATION.**

13 A. In my current position, I provide expert advice on policies needed to support equitable
14 and cost-effective electric transmission expansion and modernization, to advance
15 transportation and building sector decarbonization, and to increase access to
16 decarbonized energy sources. I also provide organizational management support to
17 certain of our non-profit clients.

18 Prior to joining DGA, I served as the Litigation Supervisor and a Senior Assistant
19 People’s Counsel at the District of Columbia Office of the People’s Counsel (DC OPC).
20 DC OPC is the statutorily designated utility ratepayer advocate for the District of
21 Columbia. In that role, I practiced before FERC, PJM, and the District of Columbia

1 Public Service Commission and supervised the dockets of junior attorneys. My portfolio
2 addressed both wholesale and distribution issues, and included electric transmission and
3 distribution rate cases, gas and electric infrastructure proceedings, and regional market,
4 resource adequacy, and grid modernization policies. Between 2010 and 2018, I practiced
5 law as an Associate at Spiegel & McDiarmid where I represented public oriented clients
6 on matters concerning regulated industries. During this time, I practiced before appellate
7 courts, FERC, and state PSCs providing both transactional and litigation services to
8 clients in the areas of energy, telecom, and transportation. My energy portfolio included
9 transmission and distribution rate cases, FERC rulemakings, environmental regulations,
10 and regional energy and capacity market rules. Prior to working at Spiegel & McDiarmid,
11 I completed a fellowship with the Great Lakes Public Service Commission where one of
12 my main projects was supporting the Great Lakes Wind Collaborative, a multistakeholder
13 organization aimed at developing wind energy in the Great Lakes region.

14 I earned my J.D. from the University of Michigan, M.S. in Environmental Policy from
15 Drexel University, and B.A. in Biology and Environmental Studies from Case Western
16 Reserve University.

17 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE GEORGIA PUBLIC**
18 **SERVICE COMMISSION (“GPSC” OR “THE COMMISSION”)?**

19 A. No.

20 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

21 A. I was asked by SACE to review the Georgia Power Company’s (“Georgia Power” or the
22 “Company”) 2023 Update to its Integrated Resource Plan (“IRP Update”) and offer policy

1 recommendations to the Commission on improvements that would benefit customers. In
2 particular, my testimony concerns the role of transmission in ensuring capacity sufficiency
3 and the IRP Update's failure to consider transmission solutions.

4 **Q. ARE YOU SUBMITTING EXHIBITS ALONG WITH YOUR TESTIMONY?**

5 A. Yes, I am submitting one exhibit, my curriculum vitae.

6 **II. SUMMARY OF FINDINGS AND CONCLUSIONS**

7 **Q. PLEASE SUMMARIZE YOUR TESTIMONY AND RECOMMENDATIONS.**

8 A. Georgia Power Updated IRP offers the Commission an extremely limited set of solutions
9 to resolve the projected exponential load growth. By offering only generation resources
10 in its Updated IRP package, Georgia Power overlooks other supply side solutions—
11 namely new transmission and transmission upgrade projects—that could more cost
12 effectively and reliably meet the Company's identified needs. Moreover, the proffered
13 generation solutions run contrary to Southern Company's, Georgia Power's parent,
14 sustainability goals and the decarbonization goals of potential customers, and the package
15 would saddle Georgia customers with costs for plants that neighboring state Mississippi
16 has found to be uneconomic.

17 In order to resolve these concerns, I recommend that the Commission:

- 18 • require Georgia Power to refile the Updated IRP with proposed transmission
19 solutions, and to include in that review both new and upgrade projects.
- 20 • Direct Georgia Power to incorporate a multivalue planning analysis into its future
21 transmission analyses.

III. TESTIMONY

A. Transmission is a supply side resource and should be considered as a potential solution for capacity needs.

Q. DO YOU HAVE ANY CONCERNS ABOUT GEORGIA POWER’S IRP UPDATE METHODOLOGY?

A. Yes. In its IRP Update, Georgia Power alleges a 17-fold increase in projected demand growth from its 2022 IRP filing, shifting from 400 MW of projected growth between 2023/24 and 2030/21 winter to 6,600 MW projected growth in the same period.

Assuming that Georgia Power’s projections are correct, its IRP update proposes only a narrow set of solutions to meet those needs.

Q. WHAT BASIS DO YOU HAVE FOR SAYING THAT THE SET OF SOLUTIONS IS NARROW?

A. Georgia Power examined only generation capacity additions and gave a modest nod to demand side options to address the projected growth. Specifically, Georgia Power’s IRP Update Resource Study Mix concludes that “additional generation capacity requirements may involve a mixture of natural gas combined cycle, dual-fuel combustion turbine with SCR, advanced nuclear, solar photovoltaic, wind, and battery storage. Additionally, the study concludes that a market option, such as the Mississippi Power Company PPA, will be needed to meet near term capacity needs.”¹

¹ Southern Company, *2023 Integrated Resource Plan Update Resource Mix Study*, at 17, October 2023 (Updated IRP).

1 **Q. WHAT RESOURCES ARE MISSING FROM THE STUDY?**

2 A. The most important resource missing from the study is transmission.

3 **Q. AS THE UTILITY, SHOULDN'T GEORGIA POWER GET THE**
4 **OPPORTUNITY TO DECIDE HOW BEST TO MEET LOAD NEEDS?**

5 A. While it is Georgia Power's responsibility to provide in the first instance options for
6 meeting additional load needs, customers are ultimately responsible for the costs of those
7 decisions. Georgia Power must provide a comprehensive and transparent review of all
8 available options so that the Commission can ensure that the proffered options are the
9 most cost-effective. This obligation is reflected in the Commission's rules which state
10 that:

11 A utility resource planning process in which an integrated
12 combination of demand-side and supply-side resources is
13 selected to satisfy future energy service demands in the most
14 economic and reliable manner while balancing the interests
15 of utility customers, utility shareholders and society-at large.
16 In IRP, all resources reasonably available to reliably meet
17 future energy service demands are considered by the utility
18 on a fair and consistent basis.^[2]

19 **Q. IS TRANSMISSION A SUPPLY SIDE RESOURCE?**

20 A. Yes. Transmission provides multiple supply side functions including providing access to
21 power generation from diversified locations, reducing the need to procure peaking
22 resources by improving capacity access from existing generation and providing access to
23 energy from wider geographic areas some of which may serve load with a non-

² Commission Rule 515-3-4-.02(25).

1 coincident peak demand, and increasing reliability and resilience especially in the face of
2 grid threats such as cyber-attacks and extreme weather events. Further, the Commission's
3 rules treat transmission modernization and expansion as a supply side resource defining
4 such a resource as:

5 A resource which can provide for a supply of electrical
6 energy and/or capacity to the utility. Supply-side resources
7 include supply-side capacity options, supplies from other
8 utilities, cogenerators, renewable resource technologies, or
9 independent third parties via existing or new transmission
10 facilities; and **the life extension, upgrading, plant**
11 **refurbishment, efficiency improvement, or capital**
12 **additions of** existing generation, **transmission** or
13 distribution facilities of the utility.^[3]

14 **Q. GEORGIA POWER DOES NOT TRADITIONALLY INCLUDE TRANSMISSION**
15 **IN ITS IRPS OR ITS CONSIDERATION OF SUPPLY SIDE RESOURCES, WHY**
16 **SHOULD IT DO SO NOW?**

17 A. There are several reasons for doing so. Chiefly, the electric network is an integrated
18 system, and strong utility planning requires an integrated consideration of all supply and
19 demand inputs. Georgia Power examines transmission needs only to the extent they may
20 be needed to serve their proposed generation solutions. The Company provides no
21 analysis of the flip side to that equation—whether integrating transmission solutions with
22 generation solutions will result in a more cost-effective and reliable network.

³ Commission Rule 515-3-4-.02(39).

1 **Q. ARE OTHER UTILITIES CONSIDERING TRANSMISSION SOLUTIONS IN**
2 **THEIR INTEGRATED RESOURCE PLANS?**

3 A. Yes. For example, in Michigan, regulated utilities must include in their IRPs an “analysis
4 of potential new or upgraded electric transmission options for the electric utility.”⁴

5 On the West Coast, PacifiCorp—a Berkshire Hathaway Energy subsidiary with a service
6 footprint in Northern California and portions of Oregon and Washington State—included
7 in its March 2023 IRP plans to “add[] 2,500 miles of new transmission lines” to promote
8 access to affordable and reliable energy.⁵

9 Similarly, Idaho Power, an IDACORP Company with a regulated footprint in eastern
10 Oregon and southern Idaho, filed its most recent IRP in September of 2023. In
11 incorporating transmission solutions into its IRP, Idaho Power explained that:

12 Idaho Power’s transmission interconnections provide
13 economic benefits and improve reliability by transferring
14 electricity between utilities to serve load and share operating
15 reserves. Historically, Idaho Power experiences its peak load
16 at different times of the year than most Pacific Northwest
17 utilities; as a result, Idaho Power can purchase energy from
18 the Mid-C energy trading market during its peak load and
19 sell excess energy to Pacific Northwest utilities during their
20 peak. Additional regional transmission connections to the
21 Pacific Northwest would benefit Idaho Power customers in
22 the following ways:

- 23
- 24 • Delay or avoid construction of additional resources to
 - 25 serve peak demand

⁴ MCL 460.6t(5)(h), *see also* MI PSC, Case Nos. U-15896 U-18461, Opinion and Order (Dec. 20, 2017)(approving the MI IRP Planning Parameters).

⁵ PacifiCorp, *2023 Integrated Resource Plan*, Chapter 4 (March 31, 2023), available at https://www.pacifiCorp.com/content/dam/pcorp/documents/en/pacifiCorp/energy/integrated-resource-plan/2023-irp/2023_IRP_Volume_I.pdf.

- Increase revenue from off-system sales during the winter and spring, which would then be credited to customers through the Power Cost Adjustment (PCA)
- Increase revenue from sales of transmission system capacity, which would then be credited to Idaho Power customers
- Increase system reliability
- Increase the ability to integrate VERs, such as wind and solar.
- Improve the ability to implement advanced market tools more efficiently, such as the [Energy Imbalance Market].^[6]

Idaho Power’s IRP transmission projects include:

the Boardman to Hemingway (B2H) 500-kilovolt (kV) transmission line in 2026 to connect the Pacific Northwest and Idaho; and three Gateway West (GWW) transmission phases spread across the 20-year plan to connect the Magic Valley and Treasure Valley, with the first phase (Midpoint–Hemingway #2 500-kV line, Midpoint– Cedar Hill 500-kV line, and Mayfield substation) modeled with an online date of late 2028.⁷

Idaho Power “also identified potential value associated with the addition of the Southwest Intertie Project-North (SWIP-N) transmission line,” a 500-kV line that would run between Idaho and Nevada, but it did not include this project in its preferred portfolio of projects.⁸ Idaho Power’s IRP includes an economic evaluation of both the proposed preferred and alternative project portfolios. The evaluation found the costs for “permitting, constructing, operating, and maintaining” the B2H line “is approximately

⁶ Idaho Power, *Building our Future: Integrated Resource Plan*, September 2023 (“2023 Idaho Power IRP”), available at <https://docs.idahopower.com/pdfs/AboutUs/PlanningForFuture/irp/2023/2023-irp-final.pdf>.

⁷ *Id.* at 1.

⁸ *Id.* at 1-2.

1 \$836 million more cost effective” than “the best alternative resource portfolio” which did
2 not include the B2H transmission project.⁹ The Idaho Power IRP is under review by the
3 Idaho and Oregon Public Utility Commissions.

4 **Q. EARLIER YOU SAID THERE WERE SEVERAL REASONS WHY GEORGIA**
5 **POWER SHOULD INCLUDE TRANSMISSION SOLUTIONS IN ITS**
6 **CONSIDERATIONS OF SUPPLY SIDE RESOURCES, WHAT ARE THE**
7 **OTHER REASONS?**

8 A. In requesting approval of its Updated IRP, Georgia Power relies heavily on its claim that
9 there is “no precedent for such loads in the historical records.”¹⁰ Unprecedented load
10 shifts signal that there is an evolution occurring in the use of Georgia Power’s network.
11 Putting aside other significant changes— including, e.g., increasing extreme weather,
12 aging infrastructure—the unprecedented growth alone speaks to the need to look for novel,
13 proactive, and flexible solutions so that the system is better designed to meet both known
14 and unknown challenges economically and reliably.

15 But Georgia Power has taken no action to evolve its generation or transmission planning
16 processes. When asked in multiple data requests about any transmission-oriented
17 analysis, Georgia Power repeatedly referred “to the Transmission Planning study and
18 project development processes outlined in Technical Appendix Volume 3 of the 2022
19 Georgia Power Integrated Resource Plan [] (Docket No. 44160), which notes how
20 projects are evaluated and developed.” This appendix is attached to the 2022 IRP

⁹ *Id.* at 83-84.

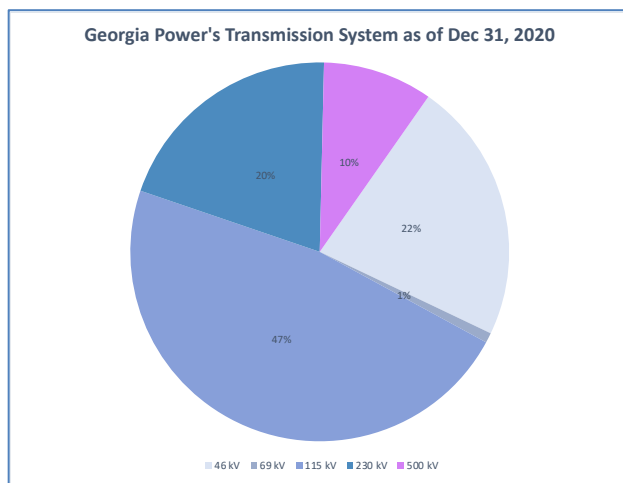
¹⁰ *See, e.g.* GP Data Response to Data Request No. STF-DEA-5-6.

process— a process that Georgia Power used prior to its claimed realization that there is “unprecedented load growth” on its system.

Q. DO YOU HAVE ANY OTHER REASONS THAT GEORGIA POWER SHOULD BE CONSIDERING TRANSMISSION IN ITS IRP?

A. Yes. Georgia Power’s existing system is primarily lower voltage transmission lines. According to the Company’s 2022 IRP Technical Appendix, less than 1/3 of Georgia Power’s transmission network is in higher voltage transmission >230 kV, and only 10% of the total lines are 500kV or above. See Figure 1 below:

Figure 1



Q. WHY DOES THAT MATTER?

A. In addition to potentially being more cost-effective, higher voltage and higher capacity lines can maximize a utility’s ability to carry and deliver power. In contrast, transmission constraints can reduce the capacity available from existing generation, which in turn increase the utility’s generation procurement requirements to meet peak load.

1 As Georgia Power notes in response to Data Request No. STF-GS-2-1, “transmission
2 constraints occur in all seasons.” The impact of transmission constraints on generation
3 availability is exemplified by Georgia Power’s explanation of the projects proposed in its
4 Updated IRP. Specifically, in response to Data Request No. STF-JKA-2-25 explains that
5 “the Company’s economic analysis assumed resources could only provide capacity
6 contribution up to the amount of capacity available on the transmission system. For
7 example, the output of Plant Yates Units 8-10 is limited to 600 MW during peak periods
8 until summer of 2028. After the summer of 2028, the transmission system can
9 accommodate the full output of Plant Yates Units 8-10.”¹¹

10 ***B. Georgia Power’s transmission planning processes are reactive rather than***
11 ***proactive and are not designed to meet the state’s current and future needs.***

12 **Q. ARE THERE DEFICIENCIES IN GEORGIA POWER’S TRANSMISSION**
13 **PLANNING STUDY APPROACH?**

14 A. Yes. Though Georgia Power plans resources on a twenty-year basis, it plans transmission
15 on a ten-year forward basis, and its latest transmission plan continues to be a reactive and
16 backwards-looking examination rather than a forward-looking review of what
17 transmission projects can help build capacity, reliability, and resiliency. Georgia Power
18 last filed its transmission study on Feb 28, 2023, in compliance with the 2022 IRP
19 Order.¹² In the study Georgia Power explains that its planning is conducted by Southern

¹¹ See also, Response to Data Request No. STF-GS-2-2 (stating that “the Company plans to designate all 1,350 MW of proposed Plant Yates combustion turbines, and the facility will be limited to 600 MW of firm output until all identified transmission improvements are in-service by summer 2028.”)

¹² See Georgia Power Company’s 2022 Integrated Resource Plan et al., Docket Nos. 441060 and 44161, *Order Adopting Stipulations*, ¶ 11 (2022) (IRP Order).

1 Company's Services – Transmission (SCST) and that planning is concerned with
2 “maintaining system models” and includes steady state, stability, and short circuit
3 studies.”¹³

4 **Q. WHAT DOES THAT MEAN?**

5 A. That means that Georgia Power is examining transmission needs only to ensure that there
6 are no current or expected reliability violations and that current generation capacity is
7 connected (though not necessarily maximized) to the system. (See Transmission Study
8 at 19 describing the inputs used for the base case).

9 **Q. HOW IS PROACTIVE PLANNING DIFFERENT?**

10 A. In contrast to a reactive process that addresses past problems, in a proactive planning
11 process the utility conducts future-looking analysis that identifies whether new
12 transmission solutions can help prepare the system for potential known and unknown
13 network changes. In an ideal proactive plan, Georgia Power would run a multivalue
14 scenario analysis that considers not only reliability issues, but also at a minimum
15 examines: expected growth under both status quo and high growth load scenarios, new
16 transmission that would increase import or export capability, transmission upgrades that
17 could result in increasing system efficiency and reducing line losses, and new
18 transmission or transmission upgrades that would increase economic efficiency.
19 Moreover, in contrast to Georgia Power's current black box planning process, multivalue
20 planning processes are open and transparent to allow all stakeholders—not just other

¹³ Georgia Power Company's 2022 Integrated Resource Plan, Docket No. 44160, *Southern Company, 2022 GA ITS Ten-Year Plan (2023-2032)*, filed Feb. 28, 2023 (“Transmission Study”).

1 utilities and transmission providers—to vet and inform the scenario development to
2 ensure they match probable network changes.

3 **Q. DID GEORGIA POWER ENGAGE IN PROACTIVE PLANNING WHEN IT**
4 **CONDUCTED THE TRANSMISSION ANALYSIS TO SUPPORT THIS**
5 **UPDATED IRP FILING?**

6 A. No. The transmission analysis that Georgia Power filed in January 2024 is limited to
7 analyzing whether new or upgraded transmission is needed to deliver Georgia Power’s
8 proposed generation options. It does not examine any independent potential new
9 transmission solutions that could enhance or supplant the proposed generation options.

10 **Q. DID GEORGIA POWER REVIEW ANY TRANSMISSION UPGRADES, SUCH**
11 **AS NEW SUBSTATIONS AND TRANSFORMERS, GRID ENHANCING**
12 **TECHNOLOGIES (GETS) SUCH AS DYNAMIC LINE RATINGS, ADVANCED**
13 **RECONDUCTORING, ETC. IN ITS TRANSMISSION ANALYSIS TO ADDRESS**
14 **THE UNPRECEDENTED LOAD GROWTH?**

15 A. Not really. In response to Data Request No. STF-DEA-4-4, the company witness states
16 that “the Company did not consider constructing additional 345kV substations and
17 transformers as an alternative means of energy provision from the bulk transmission
18 system in the scenarios discussed on November 27, 2023.”

19 In response to Data Request No. STF-DEA-4-11, the Company witness stated that they
20 “only applied dynamic line ratings to thermal constraints identified in off-peak
21 transmission planning cases,” which does nothing to minimize the generation
22 requirements to meet peak transmission planning cases.

1 In response to Data Request No. STF-DEA-4-2, Georgia Power makes clear that its
2 transmission analysis was limited, stating that “[d]ue to the timing of the transmission
3 screens, transmission planning focused on the use of operating guides, generation
4 redispatch, and transmission line rebuilds/reconductors to alleviate identified
5 constraints.”

6 **Q. GEORGIA POWER SAYS IT REVIEWED REBUILDS AND RECONDUCTORS**
7 **TO ALLEVIATE CONSTRAINTS, DID IT PROPOSE TO REBUILD OR**
8 **RECONDUCTOR ANY LINES AS PART OF ITS UPDATED IRP?**

9 A. No. The only mention of an upgrade is with respect to the transmission line serving Plant
10 Yates; these efforts were already identified in the 2023 Transmission Plan which includes
11 plans to rebuild or reconductor 27-115kV lines and 5-230 kV lines. It is not clear from
12 the Transmission Study whether these rebuild/reconductor projects are like for like
13 replacement or will include high performance conductors that could help maximize
14 generator carrying capacity.

15 **Q. CAN YOU DESCRIBE HOW GEORGIA POWER SHOULD ANALYZE**
16 **RECONDUCTORING PROJECTS.**

17 A. Yes. In lieu of just replacing existing lines with lines of the same capacity and technology
18 or dealing with congestion, Georgia Power should analyze the potential resiliency and
19 capacity gains from reconductoring pathways with high performance conductors. This
20 would entail replacing the line with either a larger diameter of conductor or a new
21 advanced conductor technology which “may add approximately 5%-10% to the total

1 project cost; however, the benefits can defray most or all of the upfront costs.”¹⁴ These
2 benefits include, but are not limited to, the following:

- 3 • *Increasing efficiencies by reducing transmission line losses.* According to Grid
4 Strategies, “[a]t the national level. . .Advanced Conductors can prevent annual
5 transmission losses of approximately 21 million megawatt-hours (MWh).”¹⁵
- 6 • *Maximizing load carrying capacity which allow for the integration of additional*
7 *generation resources and reduce power costs.* Grid Strategies reports that:

8 Reconductoring 5,000 miles of transmission using
9 Advanced Conductors creates 20,000 MW of transmission
10 capacity each year, which can integrate up to 64 million
11 MWh of renewable resource generation. . . By continuing
12 the reconductoring over the entire 10-year time period, we
13 estimate that cumulative renewable resource generation
14 integration increases to 3.5 billion MWh and cumulative
15 CO2 emission reductions increase to nearly 2.4 billion
16 metric tons. The 3.5 billion MWh of energy savings from the
17 use of high efficiency Advanced Conductors would save
18 U.S. consumers about \$140 billion or more over the
19 decade.¹⁶

- 20 • *Increased resiliency.* New conductor technology can operate at higher temperatures
21 and it sags less than the conventional technology, making the lines more resistant to
22 damage in extreme weather scenarios.¹⁷ Additionally, “even though the rated

¹⁴ Jay Caspary and Jesse Schneider, Advanced Conductors on Existing Transmission Corridors to Accelerate Low Cost Decarbonization, at 15, March 2022, available at https://acore.org/wp-content/uploads/2022/03/Advanced_Conductors_to_Accelerate_Grid_Decarbonization.pdf.

¹⁵ *Id.* at 18.

¹⁶ *Id.* at 19.

¹⁷ *Id.* at 6-7.

operating capacity of a line using an Advanced Conductor might be 40%-65% of the available capacity, Advanced Conductors can double the power density on paths using existing structures, which can be valuable during system emergencies when system operators desperately need capacity to keep the lights on.”¹⁸

- *Fast development timelines help address near-term load increases.* Because advanced conductors use existing right of ways, they likely will not need new permits and can be constructed in <1-3 years.¹⁹

Q. DO YOU HAVE ANY OTHER COMMENTS ON HOW GEORGIA POWER CONDUCTED ITS TRANSMISSION SCREENING ANALYSIS.

A. Yes. In addition to failing to plan proactively, Georgia Power also did not conduct any evaluation of whether its transmission plans would do no harm. In Response to Data Request No. STF-GS-1-6, the Georgia Power witness stated that the Company “did not perform a direct evaluation” of whether any of the identified transmission upgrades would “interfere with the ability to deploy higher voltage transmission on that right-of-way to meet future needs.”

¹⁸ *Id.*

¹⁹ Department of Energy, *Innovative Grid Deployment: Pathways to Commercial Liftoff*, at 19, Dec. 2023, available at <https://www.energy.gov/sites/default/files/2023-12/Grid%20Liftoff%20Webinar%20Final.pdf>.

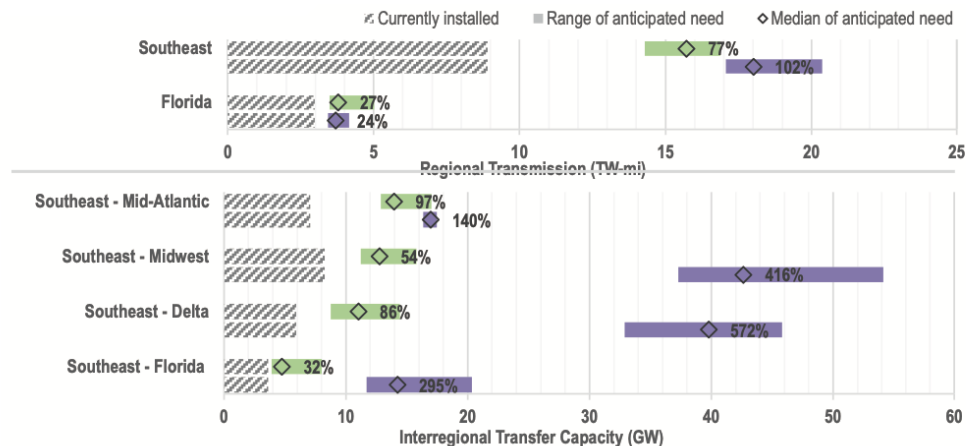
Q. OUTSIDE OF THE UPDATED IRP, DOES GEORGIA POWER HAVE ANY PLANS TO EXPAND OR MODERNIZE ITS TRANSMISSION NETWORK?

A. No. The Department of Energy’s recent Transmission Needs Study identifies the need to expand transmission within the Southeast region, which encompasses Georgia Power’s footprint, by 77% under a moderate load and high clean energy growth scenario and by 102% under a high load and high clean energy growth,²⁰ and to increase exponentially the interregional transmission capacity between the Mid-Atlantic, Midwest, Delta, and Florida regions. (See Figure 2).

Figure 2

Within-region transmission and interregional transfer capacity need for Southeast and Florida in 2035

Range of new transmission need for future scenarios with moderate load and high clean energy growth (green, top for each region) and high load and high clean energy growth (purple, bottom). Median % growth compared to 2020 system shown.



²⁰ U.S. Department of Energy, *National Transmission Needs Study*, at vi to x, Oct. 2023, available at https://www.energy.gov/sites/default/files/2023-12/National%20Transmission%20Needs%20Study%20-%20Final_2023.12.1.pdf.

²¹ U.S. Department of Energy, *Fact Sheet: 2023 National Transmission Needs Study: Southeast and Florida*, at 2, Oct. 2023, available at https://www.energy.gov/sites/default/files/2023-12/43451DOEGDONeedsStudyFactSheetsSoutheastFlorida_v6RELEASE508Compliant.pdf.

1 But Georgia Power’s transmission expansion and modernization progress is sluggish, at
2 best. The company has made relatively few additions to its system—in 2022 it
3 added/alterd only three transmission lines—one 115 kV line and two 46 kV lines,
4 approximately one mile in cumulative length.²² Similarly, in 2021, it added or altered
5 6.27 miles of lines, only 1.06 of that was a 230 kV line and the rest 115 kV.²³ The year
6 prior, 2020, was no different in that the company added or altered 7.62 miles of lines
7 while also removing 1.43 miles of lines.²⁴

8 The Southern Company’s Ten-Year Expansion Plan for transmission includes a limited
9 set of new projects, but they are all aimed at addressing existing reliability issues. For
10 example, Georgia Power proposes only three 500 kV lines over the next 10 years but the
11 projects (Dresden – Talbot 500kV and East Walton 500/230kV area project) are designed
12 to “addresses multiple thermal overloads resulting from Category P1 – Single
13 Contingency events identified as part of the Georgia Integrated Transmission System
14 (ITS) transmission planning processes in compliance with NERC TPL-001-5.”²⁵

²² Georgia Power, *2022 FERC Form No. 1*, at p 422-423, April 20, 2023.

²³ Georgia Power, *2021 FERC Form No. 1*, at p 424-425, April 13, 2022.

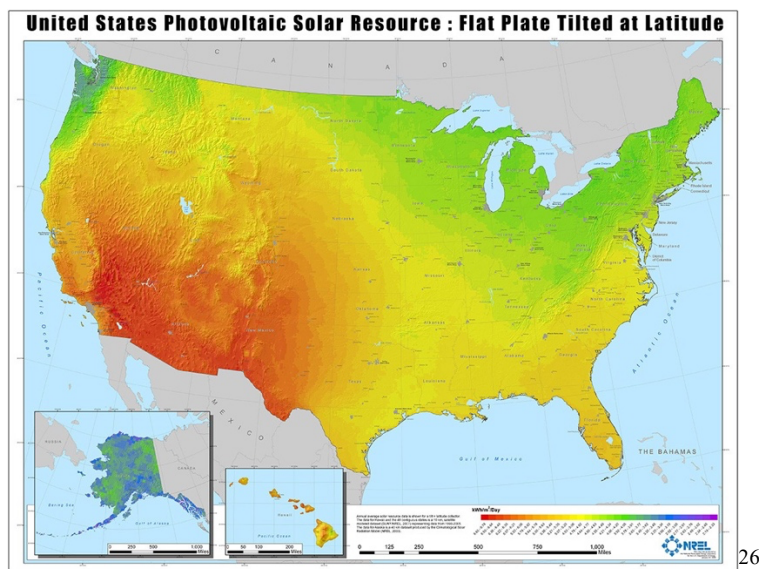
²⁴ Georgia Power, *2020 FERC Form No. 1*, at p 424, May 3, 2021.

²⁵ Georgia Power 2023 Transmission Study at 163, 169.

**Q. PLEASE PROVIDE AN EXAMPLE OF HOW GEORGIA POWER COULD
HAVE USED MULTIVALUE PLANNING TO ADDRESS THE
UNPRECEDENTED LOAD GROWTH.**

A. A prime example of how Georgia Power could use multivalue planning models is the opportunity and ability for Georgia Power to incorporate renewable energy on its system. Georgia Power provides on its website the following solar potential map (see Figure 3):

Figure 3



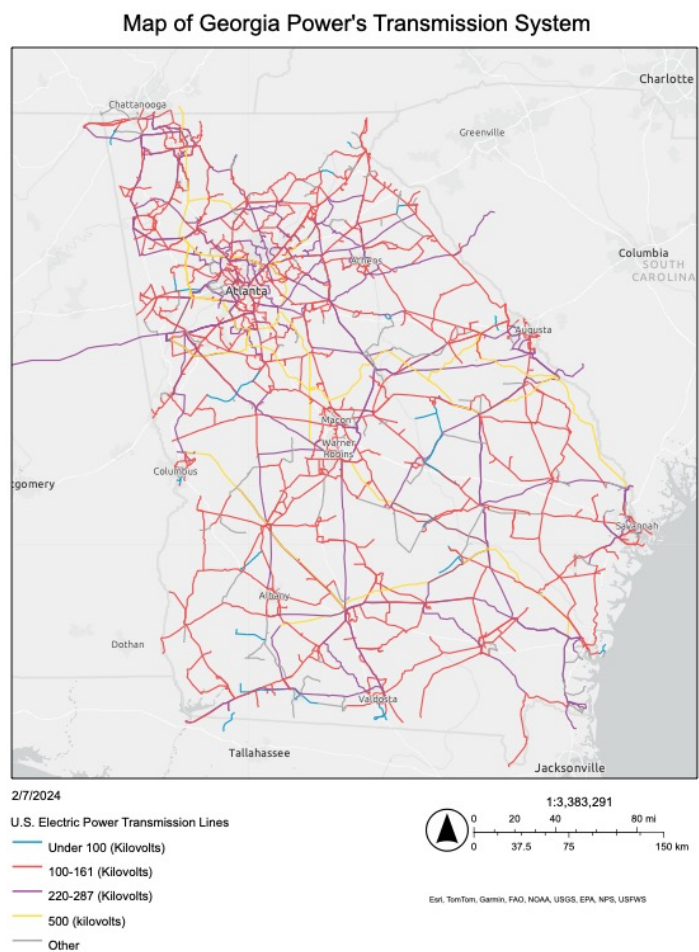
The map is accompanied by the statement that: “As can be seen on this solar map, insolation values in Georgia are significant enough to support solar energy systems in our

²⁶ Georgia Power, *Georgia Solar Potential*, last accessed Feb. 15, 2023, <https://www.georgiapower.com/company/energy-industry/energy-sources/solar-energy/georgia-s-solar-energy.html#>.

state, with the southern two-thirds of Georgia having solar insolation values equivalent to most of the state of Florida.”²⁷

The Sothern portion of Georgia, however, has a notable dearth of transmission, particularly high-voltage transmission (See Figure 4).

Figure 4



²⁷ *Id.*

²⁸ Source: Climate Mapping for Resilience and Adaptation (CMRA), U.S. *Electric Power Transmission Lines Data*, updated January 22, 2024, available at

1 If the Company had conducted a multivalued analysis, it is possible that Georgia Power
2 may have found the lifetime combined costs of new transmission/transmission upgrades
3 and renewable generation from the South would result in a greater benefit to cost ratio
4 than the Company's proposed generation procurement options. As Georgia Power
5 recognizes in Response to Data Request No. STF-JKA-4-16(d), transmission is among
6 the factors that will impact the speed in which Georgia Power can bring solar online. But
7 as no such analysis was conducted, stakeholders and the Commission lack data needed to
8 evaluate whether Georgia Power's proposed solution set will meet customer needs in an
9 economic and reliable manner.

10 **Q. GEORGIA POWER IS DEVELOPING A NORTH GEORGIA RELIABILITY &**
11 **RESILIENCE PLAN. DOESN'T THAT PLAN ADDRESS THE CONCERNS YOU**
12 **RAISE?**

13 A. Potentially it could. But Georgia Power did not incorporate that planning process in its
14 Updated IRP analysis. Data Request No. STF-DEA-4-16 specifically asks if "For the
15 screening analysis, were any transmission upgrades from the separate 'North-South'
16 transmission study included, either in the base case or as a sensitivity?" The Georgia
17 Power's witness response was "No, transmission upgrades from the separate 'North-
18 South' transmission analyses were not included in the 2023 Integrated Resource Plan []
19 Update transmission screens."

https://resilience.climate.gov/datasets/d4090758322c4d32a4cd002ffaa0aa12_0/about. The CMRA map of U.S. electric power transmission uses data from Homeland Infrastructure Foundation-Level Data (HIFLD).

1 **Q. WHAT ABOUT THE SERTP PROCESS? ISN'T THAT A MORE APPROPRIATE**
2 **VENUE TO ADDRESS MULTIVALUE TRANSMISSION PLANNING?**

3 A. SERTP should evolve its transmission planning processes, especially given the pending
4 FERC Transmission Planning and Cost Allocation Rulemaking which proposes to require
5 planning regions to amend their planning protocols to conduct long-term, comprehensive,
6 multivalue planning.²⁹ However, the SERTP process is informed by and based on
7 Southern Company's planning processes. As the old adage goes, "garbage in means
8 garbage out." If planning is not improved from the ground up at Georgia Power and
9 Southern Company, the SERTP processes will similarly be hamstrung in producing
10 results that meet current and future system needs.

11 **Q. ARE THERE ANY UTILITIES THAT ARE CONDUCTING PROACTIVE**
12 **PLANNING?**

13 A. Yes. As mentioned earlier, Michigan's IRP regulations require utilities to integrate their
14 transmission and generation plans. The required transmission analysis must include the
15 following:³⁰

16 a) The utility shall assess the need to construct new, or modify
17 existing transmission facilities to interconnect any new generation

²⁹ *Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection* (FERC Docket No. RM21-17-000), 87 Fed. Reg. 26504, 179 FERC ¶ 61,028 (2022) (NOPR); For a list of recommendations on steps SERTP can take to improve its planning processes, see Comments of the Southeast Public Interest Groups, FERC eLibrary No. 20220817-5175, filed Aug. 17, 2022, available at <https://www.cleanenergy.org/news-and-resources/sace-signed-comments-to-ferc-on-transmission-notice-of-proposed-rulemaking-nopr/>.

³⁰ MI PSC Case Nos. U-18461 and U-15896, *Integrated Resource Plan Filing Requirements Pursuant to Public Act 341 of 2016, Section 6t, Part XII*, December 20, 2017, available at <https://www.michigan.gov/mpsc/commission/workgroups/2016-energy-legislation/integrated-resource-plan-filing-requirements-schedule>.

1 and shall reflect the estimated costs of those transmission facilities
2 in the analyses of the resource options;

3 b) A detailed description of the utility's efforts to engage local
4 transmission owners in the utility's IRP process in an effort to
5 inform the IRP process and assumptions, including a summary of
6 meetings that have taken place;

7 c) Current transmission system import and export limits as most
8 recently documented by the RTO and any local area constraints or
9 congestion concerns;

10 d) Any information provided by the transmission owner(s)
11 indicating the anticipated effects of fleet changes proposed in the
12 IRP on the transmission system, including both generation
13 retirements and new generation, subject to confidentiality
14 provisions;

15 e) Any information provided by the transmission owner(s),
16 including cost and timing, indicating potential transmission options
17 that could impact the utility's IRP by: (1) increasing import or
18 export capability; (2) facilitating power purchase agreements or
19 sales of energy and capacity both within or outside the planning
20 zone or from neighboring RTOs; (3) transmission upgrades
21 resulting in increasing system efficiency and reducing line loss
22 allowing for greater energy delivery and reduced capacity need;
23 and (4) advanced transmission and distribution network
24 technologies affecting supply-side resources or demand-side
25 resources.

26 **Q. ARE THERE ANY OTHER UTILITIES THAT ARE CONDUCTING, OR**
27 **EVOLVING THEIR PROCESSES TO CONDUCT, PROACTIVE PLANNING?**

28 A. Yes. Duke Energy Carolinas and Duke Energy Progress recently filed proposed tariff
29 changes at the Federal Energy Regulatory Commission to implement a new planning
30 process for Multi-Value Strategic Transmission Projects and "timely address
31 transmission needs as the grid transitions to support a new resource mix, retire

1 generation, and respond to changing dynamics in energy use and demands.”³¹ The
2 proposed planning process includes both scenario analyses and increased transparency
3 and opportunities for meaningful stakeholder engagement in developing the
4 “assumptions, models, and criteria used in the transmission planning process, as well as
5 transmission needs and potential solutions.”³²

6 ***C. Transmission can maintain reliability in the face of extreme weather events.***

7 **Q. YOU MENTION EARLIER IN YOUR TESTIMONY THAT IT CAN BE**
8 **BENEFICIAL TO HAVE INTEGRATED TRANSMISSION SYSTEMS. WHAT**
9 **LEVEL OF INTERCONNECTION DOES GEORGIA POWER HAVE TO**
10 **NEIGHBORING UTILITIES?**

11 A. According to the FERC, NERC, and Regional Staff Entity Report on Winter Storm
12 Elliott, Southern Company, which includes the Georgia Power footprint, has 55 total
13 alternating current (AC) transmission ties to other core balancing authorities (BA) in the
14 Eastern Interconnection. Those include: twenty-six (26) ties to Florida BAs, twelve (12)
15 ties to Tennessee Valley Authority (TVA), nine (9) ties to Midcontinent Independent

³¹ *Duke Energy Carolinas, LLC and Duke Energy Progress, LLC*, Docket No. ER24-874, Re-Filing of Proposed Revisions to Local Transmission Planning Process in Attachment N-1 of Joint OATT, at 1, filed Jan. 12, 2024, eLibrary No. 20240112-5127.

³² *Id.* SACE has joined other organization in filing comments in support of Duke’s proposed changes. *Duke Energy Carolinas, LLC and Duke Energy Progress, LLC*, Docket No. ER24-874, Joint Comments of Appalachian Voices, Carolinas Clean Energy Business Association, North Carolina Sustainable Energy Association, Sierra Club, South Carolina Coastal Conservation League, and Southern Alliance for Clean Energy, filed Feb. 2, 2024, eLibrary No. 20240202-5030.

1 System Operator (MISO), 5 ties to Dominion Energy South Carolina (DESC), 2 ties to
2 Santee Cooper, and 1 tie to Duke Energy Carolinas (DEC).³³

3 **Q. WHY DOES IT MATTER IF A UTILITY HAS TIES WITH OTHER AREAS?**

4 A. Over the last few decades, we have seen a significant increase the intensity and frequency
5 of extreme weather events that have impacted the ability to run generation and deliver
6 power.³⁴ Because extreme weather events can cover an entire or even multiple utility
7 footprints, it is important that utilities have connections with neighboring utilities and
8 regions who may not be experiencing the same, or may be less impacted by, weather
9 conditions and to use these connections to import power and keep the lights on.

10 **Q. PLEASE DESCRIBE SOME OF THESE RECENT MAJOR WEATHER EVENTS.**

11 A. *December 2022- Winter Storm Elliott*: Hitting right around the Christmas holiday, Winter
12 Storm Elliott “had the largest footprint of any [extreme weather event] examined in a
13 joint FERC-NERC-Regional Entity inquiry...the extreme cold weather covered most of
14 the eastern half of the lower 48 United States, except for some of Florida.”³⁵ (See
15 Figure 5).

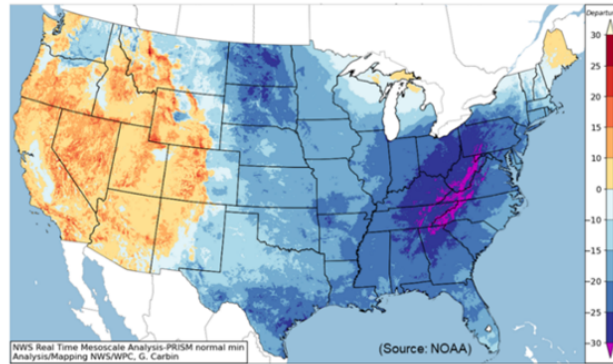
³³ FERC, NERC, and Regional Staff Entity Report, “*Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott*,” at 29, October 2023, available at https://www.ferc.gov/sites/default/files/2023-11/24_Winter-Storm_Elliott_1107_1300.pdf (“FERC-NERC Elliott Report”) (Figure 12 provides a breakdown of AC and DC lines by Balancing Authority).

³⁴ IPCC, *Sixth Assessment Report, Working Group I: The Physical Science Basis*, 2021, available at <https://www.ipcc.ch/report/ar6/wg1/>.

³⁵ FERC-NERC Elliott Report at 22.

Figure 5

Figure 8: Extreme Cold Weather Conditions – December 24, 2022

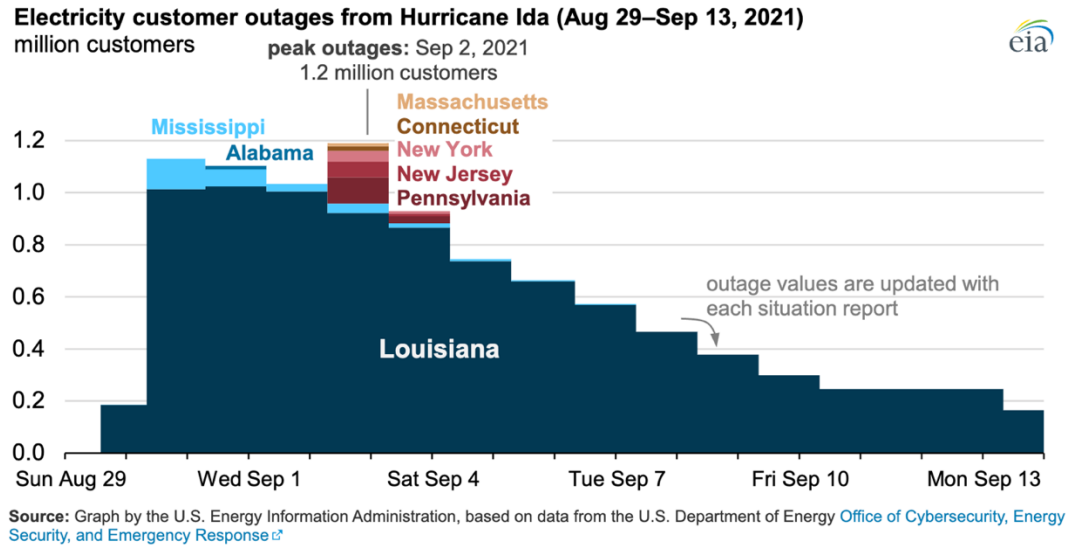


- *August-September 2021- Hurricane Ida:* This Category 4 hurricane “resulted in service outages for up to 1.2 million electricity customers across eight states,” including three southern states (Louisiana, Mississippi, and Alabama) and five northeastern states (Connecticut, Massachusetts, New Jersey, New York, and Pennsylvania).³⁷ (See Figure 6).

³⁶ FERC-NERC Elliott Report at Figure 8, Page 23.

³⁷ Energy Information Administration, *Hurricane Ida caused at least 1.2 million electricity customers to lose power*, 2021, available at <https://www.eia.gov/todayinenergy/detail.php?id=49556#> (referencing Department of Energy, CESER, *Hurricane Ida Situation Reports*, available at <https://www.energy.gov/ceser/hurricane-ida-situation-reports>).

Figure 6



- February 2021- Winter Storm Uri: the storm “dumped record amounts of snow on Texas, with the frigid temperatures and severe weather impacting all 254 counties in the state in February 2021. Millions of Texans lost power...Gov. Greg Abbott issued a disaster declaration for all 254 counties in the state.”³⁹ More than 200 people died in Texas, the majority from power outage-related causes.⁴⁰ Though the southern portion of the MISO territory was hit by the same snowstorm, they were able to keep their lights on by importing power from neighboring balancing authorities.

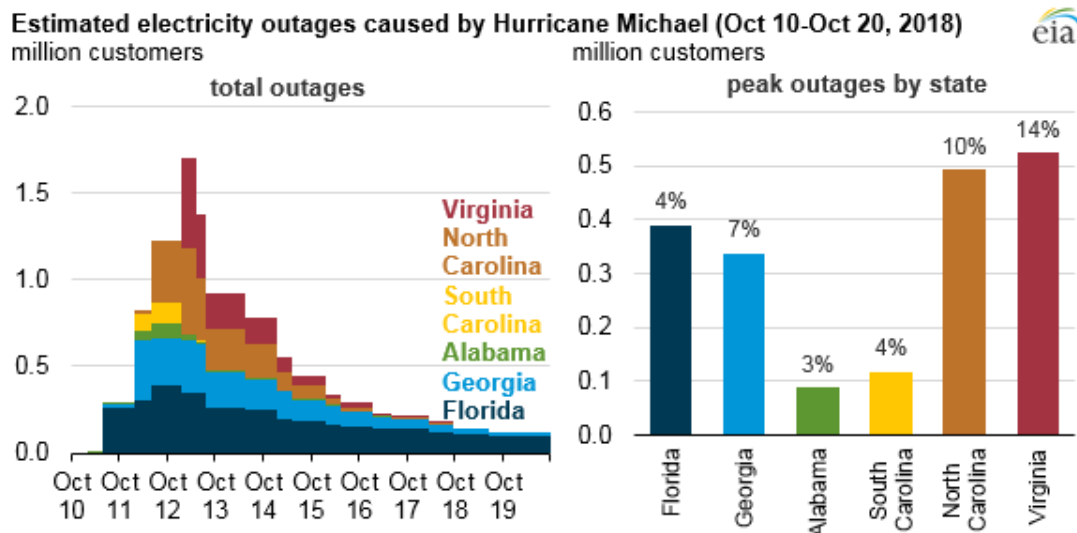
³⁸ *Id.* (Source: U.S. Energy Information Administration, based on data from the U.S. Department of Energy [Office of Cybersecurity, Energy Security, and Emergency Response](#)).

³⁹ The Texas A&M University System, *Texas Severe Winter Storm DR-4586, Winter Storm Uri*, available at <https://www.tdem.texas.gov/disasters/winter-storm-uri>, last accessed Feb. 15, 2024.

⁴⁰ FERC - NERC, *Regional Entity Staff Report: The February 2021 Cold Weather Outages in Texas and the South Central United States*, Nov. 2021, available at <https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and>.

- *October 2018- Hurricane Michael*: the tropical cyclone “resulted in service outages for up to 1.7 million electricity customers across six states,” making landfall in the Florida panhandle and travelling through Alabama, Georgia, North Carolina, South Carolina, and Virginia.⁴¹ (See Figure 7)

Figure 7



Q. HAVE ANY OF THESE EXTREME WEATHER EVENTS IMPACTED ELECTRIC SERVICE IN GEORGIA?

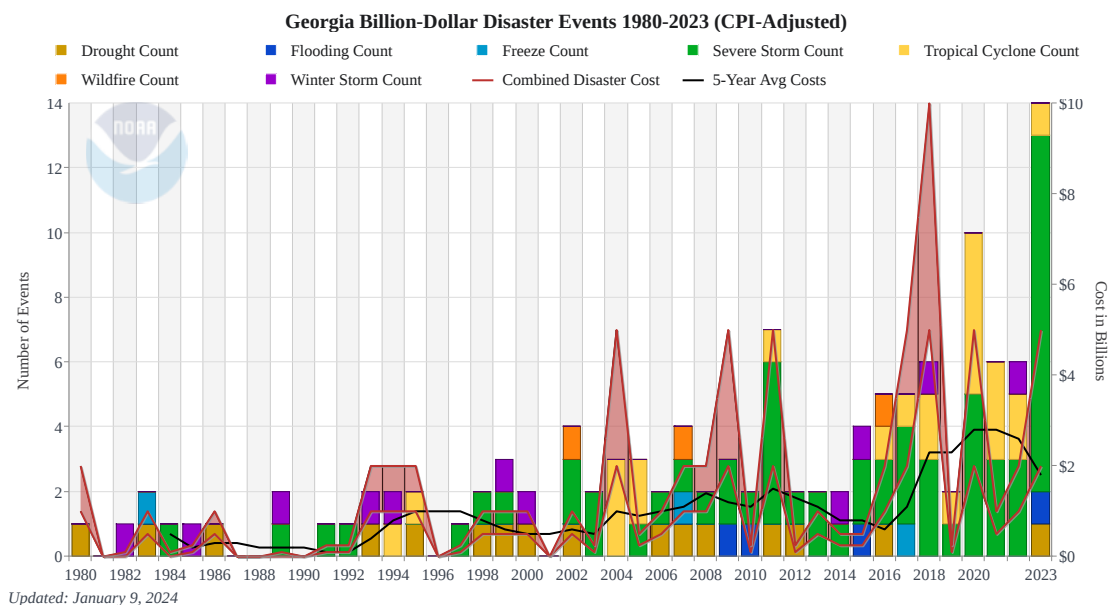
A. Yes, with respect to the events listed above, both Winter Storm Eliot and Hurricane Michael impacted power availability in Georgia. More generally, according to the National Oceanic and Atmospheric Administration (NOAA), in 2023 we experienced 28 severe weather events each costing more than \$1 billion in damages, collectively totaling

⁴¹ Energy Information Administration, *Hurricane Michael caused 1.7 million electricity outages in the Southeast United States*, October 22, 2018, available at <https://www.eia.gov/todayinenergy/detail.php?id=37332#>.

⁴² *Id.* (Source: Energy Information Administration, compiled from [U.S. Department of Energy's Office of Cybersecurity, Energy Security, and Emergency Response Situation Reports](#)).

\$92.9 billion in damages. Half (14) of those events, including heat waves, hurricanes, flooding, and severe storms, affected Georgia.⁴³ Based on NOAA data, Figure 8 charts the billion-dollar disaster events in Georgia between 1980-2023. Notably in the 53 years of data collection, the state faced the highest number of billion-dollar weather events in 2023.

Figure 8



⁴³ NOAA, National Centers for Environmental Information (NCEI), *U.S. Billion-Dollar Weather and Climate Disasters*, 2024, available at <https://www.ncei.noaa.gov/access/billions/>.

⁴⁴ NOAA, National Centers for Environmental Information (NCEI), *Georgia Summary*, updated January 9, 2024, available at <https://www.ncei.noaa.gov/access/billions/state-summary/GA>.

Q. WHAT WAS THE EFFECT OF WINTER STORM ELLIOTT ON GEORGIA POWER'S FOOTPRINT AND ON SOUTHERN COMPANY MORE GENERALLY?

A. During Winter Storm Elliott, several major utilities in the Southeast region of the U.S. were forced to implement rolling blackouts within their systems, including Duke Energy, TVA, and LG&E/KU.⁴⁵ In the Southern Company, generation also went down, but the Southern utilities were able to import sufficient power from neighboring balancing authorities to stave off large scale blackouts.

Q. PLEASE BREAK DOWN THE EVENT.

A. As per the FERC-NERC report:

virtually all of the [balancing authorities/reliability coordinators] saw generation lost or derated due to Natural Gas Fuel Issues on December 23 and 24. SPP, TVA, LG&E/KU, and VACAR-South RC all reported gaining awareness on December 23 or 24 that generating units were struggling to find adequate natural gas supply or that pipelines were struggling or unable to maintain adequate pressure at certain locations.⁴⁶

⁴⁵ Energy Ventures Analysis, *Operation of the U.S. Power Generation Fleet During Winter Storm Elliott*, at 17, February 202, available at https://www.evainc.com/wp-content/uploads/2023/02/2023_02_23-EVA-Winter-Storm-Elliott-Report.pdf; see also, Duke Energy, *Duke Energy updates North Carolina Utilities Commission on Winter Storm Elliott Emergency Outage Event*, Jan. 3, 2023, available at <https://news.duke-energy.com/releases/duke-energy-updates-north-carolina-utilities-commission-on-winter-storm-elliott-emergency-outage-event>; Tennessee Valley Authority, *TVA Accepts Responsibility, Starts Full Review*, December 28, 2022, available at <https://www.tva.com/newsroom/press-releases/tva-accepts-responsibility-starts-full-review>; Louisville Public Media, *LG&E/KU underestimated energy demand ahead of winter storm Elliott*, Jan. 26, 2023, available at <https://www.lpm.org/news/2023-01-26/lg-e-ku-underestimated-energy-demand-ahead-of-winter-storm-elliott>.

⁴⁶ FERC-NERC Elliott Report at 49.

1 For Georgia specifically, power outages in the Southern BA began at midnight on
2 December 23, 2022. During the first two hours of December 24, Southern forced 500
3 MW of gas and oil generating unit capacity offline. Over the following four hours,
4 Southern forced an additional 890 MW of gas and combined cycle generating capacity
5 offline. Between 12:00am to 6:00am on December 24, **Southern had a total of 1,390**
6 **MW in incremental unplanned outages.**⁴⁷

7 The FERC, NERC, and Regional Staff Entity report further discusses how at first
8 Southern was able to provide emergency energy to other BAs, such as TVA who declared
9 an Energy Emergency Alert (EEA) 3 on the morning of December 23. But by the early
10 evening of December 23, Southern began curtailing their energy exports to TVA to deal
11 with their own energy emergencies. On December 24 at 2:00am Southern declared an
12 Energy Emergency Alert (EEA) 1 given increasing system loads and unplanned
13 generation outages. By 6:25am, Southern declared an EEA 2 due to additional unplanned
14 generation outages, declining operating reserves, and expected load increase, leading to a
15 request for emergency energy from its neighbors: FP&L. “At 7:00 a.m., **Florida Power**
16 **and Light provided 1,000 MW of emergency energy to the Southern BA Area.**”⁴⁸

17 PJM reports that MISO provided 100 MW of emergency power to the Southern BA
18 during Winter Storm Elliot as well.⁴⁹

⁴⁷ *Id.* at 48.

⁴⁸ FERC-NERC Elliott Report at 64, 69, 72.

⁴⁹ PJM, *Winter Storm Elliott. Event Analysis and Recommendation Report*, at 19, July 17, 2023, available at <https://www.pjm.com/-/media/library/reports-notices/special-reports/2023/20230717-winter-storm-elliott-event-analysis-and-recommendation-report.ashx>

1 **Q. DURING HURRICANE MICHAEL, DID SOUTHERN COMPANY AND/OR**
2 **GEORGIA POWER EXPERIENCE GENERATION OUTAGES SIMILAR TO**
3 **WHAT HAPPENED WITH WINTER STORM ELLIOTT?**

4 A. Yes, similar grid outages occurred as a direct result of Hurricane Michael which struck
5 on the morning of Thursday, October 11, 2018, During the Category 5 tropical cyclone,
6 Georgia hit a peak of more than 336,000 customers outages, which means 7% of total
7 customers in the state were without electricity. Over 188,000, or 56%, of those customers
8 were in Georgia Power's service territory.⁵⁰ During the span of a week, more than
9 385,000 Georgia Power customers experienced power loss, with damages to 130 miles of
10 lines, over 1,000 power poles, and more than 200 transformers.⁵¹ Georgia Power's
11 damages amounted to between \$125 million and \$150 million.⁵²

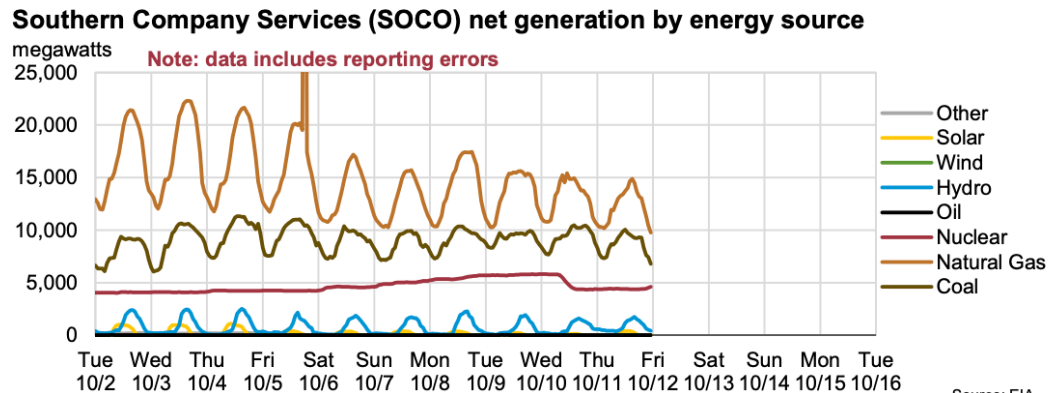
12 As shown on Figure 9 from the Energy Information Administration, across Southern
13 Company service territory, natural gas net generation decreased significantly during the
14 hurricane from a daily peak of >20,000 MW pre-Hurricane (October 3) to approximately
15 15,000 MW of generation in the days leading up to and during the hurricane
16 (October 11).

⁵⁰ U.S. Department Of Energy, CESER, *Hurricane Michael Situation Reports - October 2018, Michael DOE Event Summary Report #3 Morning October 11, 2018*, available at <https://www.energy.gov/ceser/articles/hurricane-michael-situation-reports-october-2018>.

⁵¹ Georgia Power, *Hurricane Michael Update*, available at <https://www.georgiapower.com/company/safety/outages-and-stormcenter/after-a-storm/hurricane-michael.html>

⁵² Swartz, K, *Southern Co's bill for Hurricane Michael may hit \$550M*, Energy Wire, November 8, 2018, available at <https://subscriber.politicopro.com/article/eenews/2018/11/08/southern-cos-bill-for-hurricane-michael-may-hit-550m-036270>.

Figure 9



53

Q. ARE THERE ECONOMIC BENEFITS TO EXPANDING REGIONAL TIES BETWEEN UTILITIES AND TRANSMISSION OPERATORS?

A. Yes. A 2023 report on the value of transmission during Winter Storm Elliot explains that “a region that primarily exports power during one severe weather event is likely to benefit from imports during another event.”⁵⁴ In fact, had there been adequate transmission ties between Texas and the Southeast, the “modest investments to increase power flows” that could have saved lives during Winter Storm Uri also could have provided reverse power flows during Elliott, and over the course of the two events provided close to \$2 billions in value.⁵⁵ Similarly, A 2022 Energy Systems Integration

⁵³ Energy Information Administration, *Hurricane Michael Electricity Status Report*, at 3, October 12, 2018, available at https://www.eia.gov/special/disruptions/hurricane/michael/pdf/update_10122018.pdf.

⁵⁴ Grid Strategies, *The Value of Transmission During Winter Storm Elliott*, at 5, prepared for ACORE, February 2023, available at <https://acore.org/wp-content/uploads/2023/02/ACORE-The-Value-of-Transmission-During-Winter-Storm-Elliott.pdf>.

⁵⁵ *Id.* (finding that a one GW transmission line between the Electric Reliability Council of Texas (ERCOT) and TVA would have provided nearly \$95 million in value, mostly to TVA customers. That adds to the nearly \$1 billion in value that line, flowing in the other direction, would have provided Texans suffering through outages during Winter Storm Uri in February 2021.)

1 Group (ESIG) report on multi-value transmission planning highlights the relatively low
2 cost of building out transmission to mitigate the impacts of climate events compared to
3 the high-cost implications of said climate events to ratepayers.⁵⁶ Specifically, the analysis
4 projects a potential 2 GW HVDC interregional line between ERCOT and Southern
5 Company could “avert \$2.7 billion of unserved energy over 30 years depending on the
6 loss of load expectation (LOLE).”⁵⁷

7 ***D. Georgia Power fails to account for changing generation needs in the region.***

8 **Q. DO YOU HAVE ANY OTHER COMMENTS ON GEORGIA POWERS**
9 **UPDATED IRP PROPOSAL?**

10 A. Yes. I am concerned about the resources that Georgia Power is proposing to procure as
11 they match neither the climate/sustainability goals of the Company or of its projected
12 load customers. And unlike transmission, which is resource neutral, lock Georgia Power
13 into purchasing untenable power for its customers.

14 **Q. PLEASE DESCRIBE THE COMPANY’S CORPORATE CLIMATE/**
15 **SUSTAINABILITY GOALS?**

16 A. Southern Company’s goal is to reach net zero greenhouse gas emissions by 2050, with an
17 interim goal of 50% reduction in emissions by 2030 compared to a 2007 baseline. This

⁵⁶ Energy Systems Integration Group, *Multi-Value Transmission Planning for a Clean Energy Future*, at 55, June 2022, available at <https://www.esig.energy/wp-content/uploads/2022/07/ESIG-Multi-Value-Transmission-Planning-report-2022a.pdf>.

⁵⁷ *Id.*

covers company-wide operations and includes their equity-share of Scope 1 emissions from all electricity and natural gas operations.⁵⁸

Q. ARE THE GOALS VOLUNTARY OR STATE IMPOSED REQUIREMENTS?

A. At the moment, they are voluntary as Georgia does not have any statewide climate or carbon reduction goals. According to the Center for Climate and Energy Solutions: “33 states have released a climate action plan or are in the process of revising or developing one. This includes 32 states that have released plans and 1 state that is updating its plan,”⁵⁹ but Georgia is not one those states.

Q. WHY DO YOU SAY, “AT THE MOMENT”?

A. Georgia is currently developing climate action plan to reduce its greenhouse gas emissions, with an initial draft expected in Q1 2024.

Q. WHO IS DEVELOPING THE PLAN? WHAT IS THE TIMELINE FOR THE PLAN?

A. On June 30, 2023, EPA awarded Georgia \$3 million through a Climate Pollution Reduction Grant to develop a state-wide climate action plan.⁶⁰ The EPA grant requires the following three key deliverables:

⁵⁸ Southern Company, *Southern Company Emissions Reduction Progress and Reporting*, November 2023, available at <https://www.southerncompany.com/content/dam/southerncompany/sustainability/pdfs/net-zero-transition/esg-emissions-reduction-reporting-fact-sheet.pdf>.

⁵⁹ Center for Climate and Energy Solutions (C2ES), *U.S. State Climate Action Plans*, available at <https://www.c2es.org/document/climate-action-plans/>, last accessed Feb. 15, 2024.

⁶⁰ EPA, *Climate Pollution Reduction Grants: Planning Grants Program, Status of Grant Awards for States*, available at https://www.epa.gov/system/files/documents/2023-09/cprg_planning_grant_award_status.pdf, last updated October 10, 2023.

- 1 • March 2024: Priority Climate Action Plan (PCAP);
- 2 • June 2025: Comprehensive Climate Action Plan (CCAP); and
- 3 • Summer 2027: Status Report deadline.⁶¹

4 According to Georgia’s Environmental Protection Division, its “Air Protection Branch
5 will work with various state agencies, the Atlanta Regional Commission, industry,
6 community and environmental organizations, and other stakeholders to develop
7 Georgia’s climate action plan. This plan will include a GHG emissions inventory,
8 potential GHG reduction measures, and a low-income and disadvantaged communities
9 (LIDAC) benefits analysis.”⁶²

10 **Q. YOU MENTION CUSTOMER CLIMATE GOALS, CAN YOU SPEAK MORE TO**
11 **THIS ISSUE?**

12 **A.** When asked in Data Request No. STF-DEA-4-10 whether it “assess[ed] and
13 incorporate[d] the clean energy requirements or preferences of each new load customer
14 into the planning process?,” the Company responded that it “often discusses the benefits
15 and eligibility criteria for potential new large load customers to participate in one or more
16 of Georgia Power’s customer renewable programs, such as the Clean and Renewable
17 Energy Subscription (“CARES”) Program, the Flex Renewable Energy Credit (“REC”) Program,
18 the Retail REC Retirement (“R3”) Program, or other renewable program
19 solutions as outlined on Georgia Power’s website.” However, the Company did not

⁶¹ Georgia Environmental Protection Division, *Georgia Climate Pollution Reduction Grant*, available at <https://epd.georgia.gov/georgia-climate-pollution-reduction-grant>, last accessed Feb. 15, 2024.

⁶² *Id.*

1 provide any evidence that it accounted for the climate preferences of its new large load
2 customers when preparing the menu of generation options in its Updated IRP.

3 For example, based on publicly available data, the following large industrial have
4 announced plans to build, or are in the process of building, manufacturing plants in or
5 near Georgia Power's footprint:

- 6 • Hyundai Motor Group and LG Energy Solutions plan to construct a \$4.3 billion EV
7 battery manufacturing plant in Bryan County; Hyundai is also constructing a \$5.5
8 billion Electric Vehicle Metaplant also in Bryan County and a \$5 billion battery plant
9 in Bartow County.⁶³
- 10 • Rivian is constructing a \$5 billion EV factory near Atlanta.⁶⁴
- 11 • Qcells plans to expand its solar panel production by building a new 3.3-gigawatt plant
12 in Bartow County.⁶⁵

13 Each of these companies has strong sustainability goals which means they will want to
14 procure energy that meets their goals. For example,

⁶³ Drew Kann and Greg Bluestein, *Hyundai, LG to build \$4.3B battery plant near Savannah*, The Atlanta Journal-Constitution, May 25, 2023, available at <https://www.ajc.com/news/breaking-hyundai-lg-to-build-43-billion-ev-plant-near-savannah/6RTYCW7645DKFABA6PCQRZPAUY/>.

⁶⁴ *Id.*

⁶⁵ Drew Kann and Greg Bluestein, *Solar manufacturer Qcells confirms historic Georgia expansion plans*, The Atlanta Journal-Constitution, Jan. 11, 2023, available at <https://www.ajc.com/news/solar-manufacturer-qcells-confirms-25-billion-georgia-expansion/4UQP6CMU3JFOBKF74K3UI56CVQ/>.

- 1 • With respect to its business sites, the Hyundai Company aims to transition to 60%
2 renewable energy by 2030, 90% by 2040, and 100% by 2045, and has a company-
3 wide goal of achieving carbon neutrality by 2045.⁶⁶
- 4 • LG Energy Solutions’ targets are even more aggressive as it aims to achieve 100%
5 renewable energy at all business sites by 2030, Scope 1&2 carbon neutrality by 2040,
6 carbon neutrality through its entire value chain by 2050, and become carbon negative
7 after 2050.⁶⁷
- 8 • Similarly, Rivian’s goal is by 2030 to power its normal manufacturing plants with
9 “100% renewable energy on an annual basis and over 90% hourly carbon-free
10 electricity” and use “100% renewable energy at all other nonmanufacturing facilities
11 (service centers, offices, etc.).”⁶⁸
- 12 • QCells parent company, Hanwha Solutions, has set a “Scope 1 and 2 emission
13 reduction target of 35% in 2030 and 60% in 2040 compared to the emissions in
14 2018.” And with respect to electricity, Hanwha Solutions’ goal is to “increase the
15 proportion of renewable energy powered-electricity use to 21% by 2030, 37% by

⁶⁶ Hyundai, *Road to Sustainability: 2023 Sustainability Report*, at 25, available at <https://www.hyundai.com/content/hyundai/ww/data/csr/data/0000000051/attach/english/hmc-2023-sustainability-report-en-v5.pdf>.

⁶⁷ LG Energy Solution, *2022 ESG Report*, at 28, available at [https://www.lgensol.com/upload/file/sustainability/2022_LGES_ESG_Report_ENG_FF\[0\].pdf](https://www.lgensol.com/upload/file/sustainability/2022_LGES_ESG_Report_ENG_FF[0].pdf).

⁶⁸ Rivian, *2022 Impact Report*, at 37, available at https://downloads.rivian.com/2md5qhoeajym/3CR7C1icQE7AFqByg853rg/bf92b6dc374cdd4ec1eb55183d94e06e/2022_Rivian_Impact_Report.pdf.

1 2040, and 100% by 2050. Starting in 2023, [they] will increase the supply of solar-
2 based renewable energy power through long-term REC purchase agreements.”⁶⁹

3 But the majority of the procurement options proposed by Georgia Power in its Updated
4 IRP do not match these decarbonization goals.

5 **Q. DOES GEORGIA POWER’S INTEGRATED RESOURCE PLAN ACCOUNT**
6 **FOR ITS PARENT SOUTHERN COMPANY’S CARBON GOALS?**

7 A. No. In Data Request No. STF-DEA-4-14, Georgia Power was asked “In designing
8 transmission solutions for the proposed new load, did Georgia Power consider and align
9 with Southern Company’s internal targets regarding clean energy?” The response was
10 that “specific clean energy targets did not impact the selection of transmission solutions.”

11 **Q. IS THERE OTHER EVIDENCE THAT GEORGIA POWER’S PLANS DO NOT**
12 **ALIGN WITH SOUTHERN COMPANY’S GOALS?**

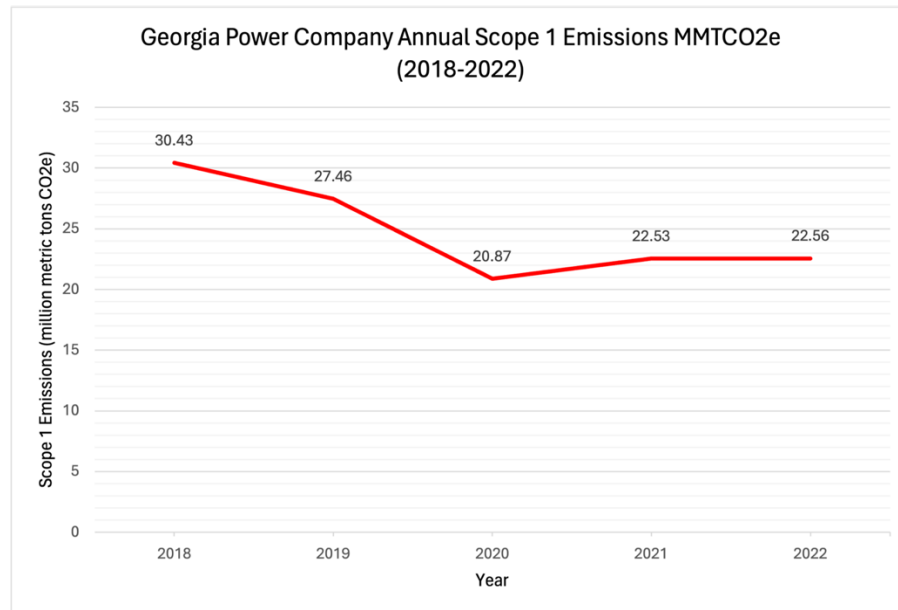
13 A. Yes. Southern Company voluntarily participates in the annual CDP Climate Change
14 Disclosure reports and includes in those reports the annual greenhouse gas emissions data
15 for Georgia Power.⁷⁰ In the latest 2023 CDP Climate Change questionnaire, Southern

⁶⁹ Hanwha Solutions, *Sustainable Solutions for All, Sustainability Report 2023*, at 49-51, available at https://www.hanwhasolutions.com/static/en/data/Hanwha_Solutions_Sustainability_Report_2023.pdf.

⁷⁰ Southern Company, CDP 2019 Climate Change Disclosure at 52, available at <https://www.southerncompany.com/content/dam/southern-company/pdf/corpresponsibility/CDP-Climate-Disclosure-2019.pdf>; Southern Company, CDP 2020 Climate Change Disclosure at 34, available at https://www.southerncompany.com/content/dam/southerncompany/sustainability/pdfs/2020_CDPClimateChangeDisclosure.pdf; Southern Company, CDP 2021 Climate Change Disclosure at 75, available at <https://www.southerncompany.com/content/dam/southerncompany/pdfs/about/governance/reports/CDP-Climate-Disclosure-2021.pdf>; Southern Company, CDP 2022 Climate Change Disclosure at 107, available at https://www.southerncompany.com/content/dam/southerncompany/sustainability/pdfs/2022_cdpclimatechangedisclosure.pdf; Southern Company, CDP 2023 Climate Change Disclosure at 120, available at

reported 22,559,027 metric tons of CO₂ equivalent for Georgia Power Scope 1 emissions (see Figure below).⁷¹ Note that the increase in emissions in 2021 was expected with electricity demand increases associated with COVID-19.⁷²

Figure 10



Based on the utility's current trajectory, it is unlikely that Georgia Power will be able to meet the Company's internal targets. According to SACE's Tracking Decarbonization in the Southeast report, Georgia Power's current plans project a steeper emission reduction than that of Alabama Power and Mississippi Power, but there is a worrisome flattening of

<https://www.southerncompany.com/content/dam/southerncompany/sustainability/pdfs/2023-cdp-climate-change-disclosure.pdf>

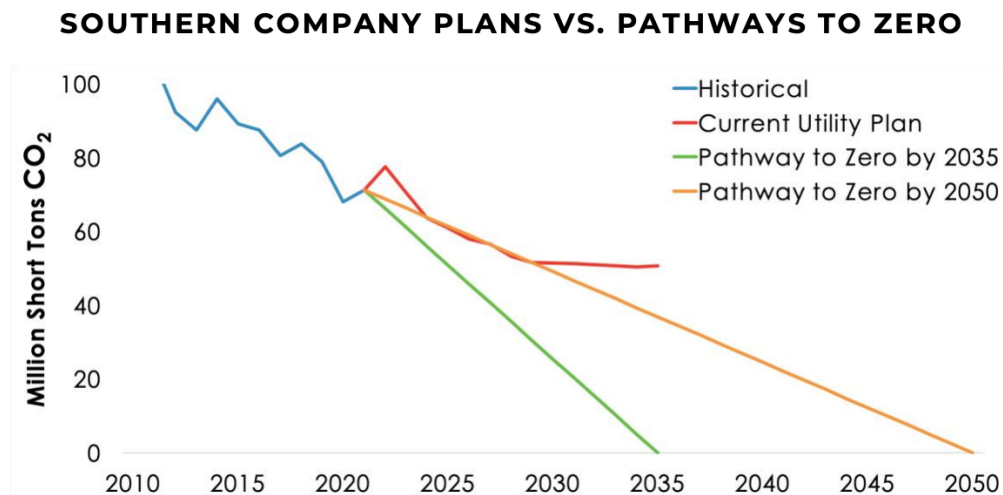
⁷¹ Southern Company, CDP 2023 Climate Change Disclosure. Southern Company at 120, available at <https://www.southerncompany.com/content/dam/southerncompany/sustainability/pdfs/2023-cdp-climate-change-disclosure.pdf>

⁷² Southern Alliance for Clean Energy, *Tracking Decarbonization in the Southeast: Fifth Edition*, at 6, 2023, available at <https://www.cleanenergy.org/wp-content/uploads/Tracking-Decarbonization-in-the-Southeast-Fifth-Edition.pdf> (SACE Decarbonization Report).

⁷³ Georgia Power Scope 1 emissions from 2018 to 2022 using CDP survey data.

emissions from all utilities after 2030 that will make it difficult for Southern Company to achieve zero emissions by 2050. As depicted in Figure 11 below, the pathways to zero emissions by 2035 and 2050 will require a significant departure from the Southern Company utilities current track of emission reductions.⁷⁴

Figure 11



Q. IS THERE ANY OTHER EVIDENCE THAT GEORGIA POWER'S PLANS DO NOT ALIGN WITH SOUTHERN COMPANY'S GOALS?

A. Yes. In its Updated IRP, Georgia Power seeks, among other things, to enter into a power purchase agreement with Mississippi Power and to add three gas oil combustion turbine units at Yates. Both are problematic from a climate positive resource perspective.

⁷⁴ SACE Decarbonization Report at 6.

⁷⁵ *Id.*

**Q. WHAT CONCERNS DO YOU HAVE WITH THE MISSISSIPPI POWER
PURCHASE AGREEMENT?**

A. Per Georgia Power’s own admission, the Mississippi Power PPA is “not unit specific and may be supplied by any resource in the Mississippi Power fleet.”⁷⁶ That said, the Company’s witness also explains that “in the absence of the Mississippi Power PPA, several Mississippi Power resources would be retired and removed from the Southern Company pool. The existence of the Mississippi Power PPA ensures that these resources will continue to be part of the Southern Company pool and that the power produced will be designated for service to Georgia Power’s customers.”⁷⁷

In additional responses it becomes clearer that the Mississippi PPA concerns fossil resources. Specifically, in response to Data Request No. STF-JKA-2-20, the Georgia Power witness explains that the reason the Company negotiated a term beginning on January 1, 2024, well before its increased load needs commence, was “because Mississippi Power was ordered to retire approximately 950 MW of capacity by the end of 2027 or show with detailed evidence why continued operation of the resources is in the best interests of its customers. . . . By purchasing 750 MW from Mississippi Power through this PPA, Georgia Power ensures that this resource [] remains in the Southern Company pool.” These plants are fossil fueled and the Mississippi PSC ordered their retirement because they were uneconomic for Mississippi ratepayers. Yet Georgia Power

⁷⁶ Response to Data Request No. STF-JKA-4-11(d).

⁷⁷ *Id.*

1 seeks to continue to run the uneconomic and carbon emitting plants by having Georgia
2 customers pay for the output.

3 **Q. WHY DO YOU HAVE CONCERNS ABOUT THE DUAL FIRED POWER**
4 **PLANT AT PLANT YATES 8-10.**

5 A. Though the IRP update touts the natural gas aspects of the plants, discovery makes clear
6 that Georgia Power plans to run these plants primarily on oil due to natural gas supply
7 constraints, especially in cold weather months. Specifically, in response to Data Request
8 No. STF-JKA-2-22, Georgia Power states that:

9 Plant Yates Units 8-10 are dual fuel units. They can operate
10 on natural gas as available, but they are unlikely to have
11 reliable supply of natural gas during peak winter periods
12 without firm transportation (“FT”). No FT has been
13 procured for these units. Therefore, these units will be
14 supplied with oil to support continued operation during peak
15 conditions. These units will be able to utilize gas when FT is
16 available from other units such as the Plant Yates steam units
17 or when interruptible pipeline transportation is available. . .
18 Plant Yates Units 8-10 will primarily run on fuel oil during
19 peak winter and summer periods when the pipeline is
20 constrained. No FT or additional gas capacity is being
21 proposed to support these units since these units can burn oil
22 year around.

23 In response to Data Request No. STF-JKA-2-14, the Company provides a similar
24 response about constrained gas access stating that:

25 The Company assumed oil dispatch for new generic
26 combustion turbines (“CTs”) because the pipelines serving
27 the Company region have become increasingly constrained
28 and less flexible in recent years. These constraints limit the
29 amount of swing and daily imbalance through frequent
30 issuance of daily Operational Flow Orders (i.e., curtailment
31 of gas supply). These constraints bind the Southern

1 Company retail operating companies' ability to operate any
2 of its natural gas units on the same pipeline system,
3 including new CTs. The Company can successfully manage
4 this through the usage of fuel oil. Additionally, the ability to
5 construct new pipeline infrastructure to alleviate pipeline
6 constraints has been very challenging (e.g., Mountain Valley
7 Pipeline). Therefore, assuming new pipeline infrastructure
8 will be available for all future natural gas units is unrealistic.
9 Given the current operational realities and the challenges
10 facing the pipeline infrastructure industry, the Company
11 assumes the most reliable operational plan for new generic
12 expansion CTs is for them to be dual-fueled with the ability
13 to burn fuel oil year-round and plan to be augmented with
14 natural gas when it is available.

15
16 **Q. WHY IS THAT A PROBLEM?**

17 A. Carbon emissions are significantly higher when oil is burned instead of natural gas
18 (which itself is significantly higher than using renewable resources to produce
19 electricity). Table 1 provides Energy Information Administration⁷⁸ data for the
20 generation (kWh), carbon emission (MT CO₂), and fuel consumption (MMBtu) data from
21 five plants in the state of Georgia that have units that run on gas and petroleum. Two of
22 these plants, McIntosh and Robins, are owned by Georgia Power, and a third, Dahlberg,
23 is owned by Southern Company. Using the EIA data to calculate carbon dioxide
24 emissions per energy output, it is clear that each plant emitted more carbon dioxide to
25 produce the same amount of electricity when burning oil versus natural gas.

⁷⁸ Energy Information Administration, *Emission by Plant and Region*, "2022 Emissions by plant for CO₂, SO₂, and NO_x," available at <https://www.eia.gov/electricity/data/emissions/>.

Table 1

Plant Name	Fuel	Generation (kWh)	MTCO2	Fuel Consumption (MMBtu)	lbs of CO2/MMBtu	lbs of CO2/MWh	Carbon intensity of NG v. DFO
Dahlberg	Gas (NG)	313,401,902	187,483	3,543,441	116.65	1318.85	71.37%
Dahlberg	Pet (DFO)	2,862,098	2,399	32,361	163.43	1847.90	
Talbot County Energy	Gas (NG)	604,584,554	382,510	7,229,446	116.65	1394.82	71.39%
Talbot County Energy	Pet (DFO)	812,446	720	9,716	163.37	1953.76	
McIntosh	Gas (NG)	35,571,054	29,372	555,139	116.64	1820.42	82.16%
McIntosh	Pet (DFO)	48,720,946	48,966	660,452	163.45	2215.71	
Robins	Gas (NG)	7,195,503	1,472	27,815	116.67	451.00	71.40%
Robins	Pet (DFO)	2,708,497	776	10,471	163.38	631.64	
MPC Generating	Gas (NG)	145,449,482	88,612	1,674,761	116.65	1343.12	71.38%
MPC Generating	Pet (DFO)	3,525,517	3,009	40,582	163.46	1881.63	

Q. DO YOU HAVE ANY OTHER CONCERNS?

A. Yes. The Updated IRP and associated data responses indicate that Georgia Power is considering extending the retirement dates of its coal plants. Specifically, the Updated IRP states that

In the 2022 IRP Final Order, the Commission approved the retirement and decertification of Plant Scherer Unit 3 and Plant Gaston Units 1-4 and Unit A by December 31, 2028. With continuing increases to the projected load forecast and capacity needs following 2028, the Company will likely evaluate extending the operation of certain units, particularly Plant Scherer Unit 3, beyond 2028.⁷⁹

Moreover, in response to Data Request No. STF-JKA-2-8 the Company witness states that:

with the increase in capacity needs in 2028 and beyond, the Company is assuming Bowen Units 1-2 will retire at the end

⁷⁹ Updated IRP at 27.

1 of 2035 for planning purposes. Also, while the current
2 assumed retirement date for Scherer Unit 3 and Plant Gaston
3 Units 1-4 and Unit A are at the end of 2028, the Company
4 will likely evaluate extending operation of certain units
5 beyond 2028 in the 2025 IRP.

6 **Q. WHY IS THIS CONCERNING?**

7 A. Rather than evolving its system needs and looking to build a network that is future proof,
8 the utility is looking backwards to continue operating plants that the affiliate-owner itself
9 found are uneconomic and misaligned with the Company's goals. Georgia Power should
10 be increasing its network capacity to procure resources that the Company and its
11 customers want.

12 **IV. RECOMMENDATIONS**

13 **Q. DO YOU HAVE RECOMMENDATIONS TO ADDRESS THE CONCERNS AND**
14 **DEFICIENCIES THAT YOU HAVE RAISED ABOVE?**

15 A. Yes. First and foremost, the Commission should require Georgia Power to refile the
16 Updated IRP with proposed transmission solutions, and to include in that review both
17 new and upgrade projects. While Georgia Power sweepingly declares that there is not
18 sufficient time to incorporate transmission projects, it provides no data to back its claim.
19 Further, the Company failed to study any GETS solutions and there is scant evidence of
20 any reconductoring analysis—both of which are solutions that can be implemented over
21 short timelines. In directing Georgia Power to conduct a more robust transmission
22 analysis, the Commission should also require the Company to base its economic analysis
23 on a life-cycle economic cost and benefit assessment which includes not only the capital

1 costs of new infrastructure, but also the efficiency, reliability, and generation access gains
2 over the lifecycle of the proposed project.

3 Moreover, the Commission should require Georgia Power to consider federal financing
4 options in its economic calculations. In its response to Data Request No. STF-PIA-7-1,
5 Georgia Power explained that its “Transmission planning does not consider any
6 assumptions, costs and benefits related to federal, state, and local tax incentives, grants,
7 loan subsidies or other benefits in its analyses on transmission needs and investments.”

8 But these incentives and subsidies can play a key role in making transmission solutions
9 more economic. For example, the Department of Energy Loan Program Office’s (LPO)
10 Energy Infrastructure Reinvestment Program (EIR) helps finance projects that “retool,
11 repower, repurpose, or replace” certain aging infrastructure, this includes “reconductoring
12 transmission lines and upgrading voltage” and replacing retired power plants with
13 “transmission interconnection to off-site clean energy.”⁸⁰ And the Department of
14 Energy’s Grid Deployment Office offers several programs to finance the construction and
15 upgrade of transmission lines including the Transmission Facilitation Program, Grid
16 Resilience and Innovation Partnerships (GRIP) Program, and Grid Resilience Grants.⁸¹

⁸⁰ See, e.g. U.S. Department of Energy, *Title 17 Clean Energy Financing – Energy Infrastructure Reinvestment*, available at <https://www.energy.gov/lpo/energy-infrastructure-reinvestment>.

⁸¹ See, e.g. U.S. Department of Energy, *Federal Financing Tools*, available at <https://www.energy.gov/gdo/federal-financing-tools>; see also Department of Energy, *Innovative Grid Deployment: Pathways to Commercial Liftoff*, Dec. 2023, available at <https://www.energy.gov/sites/default/files/2023-12/Grid%20Liftoff%20Webinar%20Final.pdf>.

1 **Q. DO YOU HAVE ANY ADDITIONAL RECOMMENDATIONS?**

2 A. Yes. The Commission should continue to evolve its transmission planning processes and
3 direct Georgia Power to conduct a proactive and multivalued, rather than reactive,
4 planning analysis in concert with its three-year IRP filing. In making this
5 recommendation, I also recommend the Commission adopt SACE’s 2022 IRP
6 recommendation to “[e]stablish a Transmission Planning Collaborative that includes
7 opportunities for meaningful engagement by interested stakeholders to enable
8 consideration of economic transmission and distribution system investments and
9 alternatives.”⁸²

10 These process and planning improvements will aid both Georgia Power’s own and the
11 SERTP regional planning process. In the Commission’s own words, “This type of
12 transparency in transmission planning will facilitate better decision-making compared to
13 the [information] that the Commission [is] currently receiv[ing].”⁸³

14 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

15 A. Yes

⁸² Docket No. 44160, SACE and Southface Brief at 11-13.

⁸³ IRP Order at ¶ 11.