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

<b>Georgia Power Company’s 2019 Integrated Resource Plan and Application for Certification of Capacity from Plant Scherer Unit 3 and Plant Goat Rock Units 9-12 and Application for Decertification of Plant Hammond Units 1-4, Plant McIntosh Unit 1, Plant Estatoah Unit 1, Plant Langdale Units 5-6, and Plant Riverview Units 1-2</b>	)	
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	)	<b>DOCKET NO. 42310</b>
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<b>Georgia Power Company’s 2019 Application for the Certification, Decertification, and Amended Demand Side Management Plan</b>	)	
	)	<b>DOCKET NO. 42311</b>
	)	

**DIRECT TESTIMONY OF JOHN D. WILSON**  
**AND BRYAN A. JACOB**  
**ON BEHALF OF**  
**SOUTHERN ALLIANCE FOR CLEAN ENERGY**

**April 25, 2019**

1 **I. Introduction**

2 **Q. Please state your name, position and business address.**

3 A. My name is John D. Wilson. I am Deputy Director for Regulatory Policy for Southern  
4 Alliance for Clean Energy (“SACE”), and my business address is 3804 Middlebrook Pike,  
5 Knoxville, Tennessee.

6 A. My name is Bryan A. Jacob. My role is Solar Program Director for Southern Alliance for  
7 Clean Energy (“SACE”). My business address is 691 John Wesley Dobbs Ave., Atlanta,  
8 Georgia, 30312.

9 **Q. On whose behalf are you testifying in this proceeding?**

10 A. We are testifying on behalf of Southern Alliance for Clean Energy (SACE).

11 **Q. Mr. Wilson, please summarize your qualifications and work experience.**

12 A. I graduated from Rice University in 1990 with a Bachelor of Arts degree in physics and  
13 history. I received a Masters in Public Policy from the John F. Kennedy School of  
14 Government at Harvard University in 1992 with an emphasis in energy and environmental  
15 policy, and economic and analytic methods. Since 1992, I have worked in the private, non-  
16 profit and public sectors on a wide range of public policy issues, usually related to energy,  
17 environmental, and planning topics.

18 I am the Deputy Director for Regulatory Policy for SACE, where I have been employed  
19 since 2007. I am the senior staff member responsible for SACE’s utility regulatory research  
20 and advocacy, as well as energy resource analysis. In this capacity, I am responsible for  
21 leading dialogue with utilities and regulatory officials on issues related to resource

1 planning and financial regulation, particularly as they relate to energy efficiency,  
2 renewable energy, and conventional generation resources. This takes the form of formal  
3 testimony, comments, presentations, and/or informal meetings in the states of Georgia,  
4 Florida, North Carolina and South Carolina, and with respect to the Tennessee Valley  
5 Authority.

6 A copy of my resume is included as Exhibit SACE-IRP-1.

7 **Q. Mr. Wilson, have you previously testified before the Georgia Public Service**  
8 **Commission (“GPSC” or “the Commission”)?**

9 A. Yes, I testified in the proceedings on Georgia Power Company’s (“Georgia Power” or “the  
10 Company”) 2010 Integrated Resource Plan (“IRP”) and Demand Side Management  
11 (“DSM”) Plan (GPSC Docket Nos. 31081 & 31082), in the Georgia Power 2013 IRP  
12 (GPSC Docket No. 36498), and in the Georgia Power 2016 IRP (GPSC Docket No. 40161).

13 **Q. Mr. Jacob, please summarize your qualifications and work experience.**

14 A. I graduated from Georgia Institute of Technology in 1993 with a Bachelor of Civil  
15 Engineering. From 1993-2015, I coordinated and led environmental programs for The  
16 Coca-Cola Company, including development of a system-wide climate protection strategy.  
17 The strategy I led incorporated both demand side energy efficiency as well as supply side  
18 renewable energy. In 2015, I launched Climate Coach International, LLC, to help  
19 organizations understand climate-related risks and opportunities, then design and  
20 implement practical (and cost-effective) climate mitigation and adaptation strategies. I  
21 joined SACE in 2017 to lead the Solar Program efforts across seven Southeastern states,  
22 and I also represent SACE in Georgia in many venues. My program responsibilities range

1 from conducting research on solar power trends to advocacy on utility resource planning,  
2 and specifically include collaboration with stakeholders in the solar energy development  
3 industry.

4 A copy of my resume is included as Exhibit SACE-IRP-2.

5 **Q. Mr. Jacob, have you previously testified before the Georgia Public Service**  
6 **Commission (“GPSC” or “the Commission”)?**

7 A. No.

8 **Q. What is the purpose of your testimony?**

9 A. We have evaluated Georgia Power’s overall supply strategy to determine whether  
10 the constraints on adding renewable energy or retiring existing units are reasonable. We  
11 also reviewed the financial incentives that motivate Georgia Power to effectively  
12 implement both supply and demand side clean energy resource acquisitions. After  
13 completing our review of these topics, we have four recommendations for the  
14 Commission’s consideration.

- 15 • Renewable-only procurements should be increased from 1,000 MW to at least  
16 3,000 MW, with feasible development of at least 4,800 MW.
- 17 • Replacement capacity for Plant Wansley Units 1 and 2 should be added to the  
18 proposed 2022-2023 RFP. This RFP should be conducted as an all-source  
19 procurement as discussed in the testimony of Mark Detsky.

- 1           •       If the Commission decides not to approve the proposed 2026-28 RFP at this time,  
2                   it should modify the 2022-2023 RFP to include an explicit invitation for  
3                   “extraordinary advantage” projects that would be completed after 2023.
- 4           •       While generally supportive of the amount of additional sum that Georgia Power is  
5                   requesting for DSM and renewable energy PPAs, we believe that the specific design  
6                   of the additional sum incentives includes several flaws. We recommend the  
7                   Commission should establish an additional sum policy that is consistent across all  
8                   resources, as discussed in detail below.

9           These changes will enhance benefits to customers, and ensure that the Company does not  
10           pass up opportunities to secure dependable, cost-effective energy resources.

11 **Q.    Are you submitting exhibits along with your testimony?**

12 A.    Yes, we are submitting three (3) exhibits along with our testimony, as follows:

- 13           •       SACE-IRP-1: Resume of John D. Wilson.
- 14           •       SACE-IRP-2: Resume of Bryan A. Jacob.
- 15           •       SACE-IRP-3: Levelized Cost of Energy (LCOE) comparison 2019 vs 2023.

16 **II.   Summary of Review**

17 **Q.    Please summarize the results of SACE’s review of the Company’s 2019 IRP and DSM**  
18 **Plan and the analysis you have conducted.**

19 A.    SACE believes that the Georgia Power IRP includes many positive elements, but that it  
20           should be revised to reflect a stronger commitment to renewable resources and energy  
21           efficiency. The Commission should not stick with the status quo, but build on innovation  
22           and experience to create a truly bold energy plan for Georgia.

1 SACE's evaluation includes the following findings.

- 2 • Georgia Power has not refreshed its analysis of the technical feasibility of renewable  
3 energy since the 2016 IRP. Accordingly, there remains an opportunity to reach at least  
4 8,000 MW of renewable energy on Georgia Power's system.
- 5 • The CRSP proposal is an appropriate method for funding a large portion of that  
6 renewable energy development potential, but should be modified as discussed by our  
7 witness Theresa Perry.
- 8 • Another method for ensuring cost-effective renewable energy development is to utilize  
9 an all-source procurement, rather than a "firm capacity" RFP, as discussed by our  
10 witness Mark Detsky.
- 11 • That all-source procurement should also include the capacity associated with Plant  
12 Wansley, as a means to ensure that if it continues to operate, it is likely to be cost-  
13 effective. It should also include the opportunity for projects with longer development  
14 timelines to participate using the "extraordinary advantage" provision.
- 15 • Georgia Power's IRP studies likely result in undervaluing the contribution of solar to  
16 its system, as discussed by our witness Brendan Kirby.
- 17 • Georgia Power proposes inadequate investment in energy efficiency despite strong  
18 economics and extensive untapped potential. In light of these deficiencies,  
19 Commission action is warranted to double efficiency savings in the DSM plan over the  
20 next three years, as discussed by our witness Forest Bradley-Wright.

- 1           • The additional sum proposals by Georgia Power are of an appropriate magnitude, but  
2           should be redesigned to ensure consideration of risk and an equitable sharing of  
3           benefits.

4           We recommend that the Commission and its staff make significant changes to Georgia  
5           Power’s 2019 IRP in order to ensure that Georgia and Georgia Power are among the leaders  
6           on electric power policy and practice.

7   **III. CRSP Capacity**

8   **Q. Why do you recommend that Georgia Power increase its renewables-only**  
9   **commitment?**

10   A. The Georgia Power witness panel acknowledged that it has received at least 1,400 MW of  
11   requests for its CRSP program. The panel also acknowledged that the primary method by  
12   which its overall customer base would benefit is by unused subscription capacity, which  
13   we believe is unlikely to be significant.

14           As Georgia Power witness Grubb testified during the hearing, on redirect, he agreed that  
15           Georgia Power has an obligation “to serve the best interests of all of Georgia Power’s  
16           customers,” and he stated that Georgia Power does not “have an obligation to serve any  
17           specific planning goals of any individual customers.” (Tr. 738) Yet there are two ways that  
18           the proposed 950 MW CRSP potentially limits the benefits of cost-effective renewable  
19           energy to serving the planning goals of a relatively small number of individual customers.

20           First, the 950 MW cap will exclude over 25% of the customers that have already informally  
21           requested CRSP subscriptions, as well as customers who are seeking to expand or locate  
22           new facilities in Georgia, but are excluded from the 450 MW available to customers adding

1 incremental, new load of 25 MW or greater. Second, if the 950 MW are exclusively  
2 supplied via subscription, the CRSP program design would exclude the vast majority of  
3 Georgia Power’s customers, which would clearly not be in their best interests. Additional  
4 renewable energy resources are clearly called for to serve the customer demand for  
5 renewable energy, and to benefit “all of Georgia Power’s customers.” For reasons  
6 discussed below, we believe the appropriate amount that Georgia Power should increase  
7 its renewables-only commitment is a minimum of 3,000 MW, with feasible development  
8 of additional renewable energy up to at least 4,800 MW.

9 **Q. How do you recommend Georgia Power procure 3,000 MW of renewable energy?**

10 **A.** We recommend that the company increase its procurement of utility-scale renewable  
11 resources through CRSP to at least 1,500 MW, reflecting the 1,400 MW minimum  
12 expressed demand plus an additional amount to reflect additional demand that may develop  
13 between now and the time that subscriptions are available.

14 Furthermore, in order to provide equal benefits to “all Georgia Power’s customers,” we  
15 recommend that a matching additional 1,500 MW of renewable resources be procured. At  
16 the Commission’s discretion, these 1,500 MW could be procured through either Georgia  
17 Power’s proposed distributed generation (DG) procurement strategy, a DG procurement  
18 strategy recommended by an intervening party, or utility-scale procurement similar to  
19 REDI.

20 If the Commission includes a REDI-styled procurement in its order, it should be procured  
21 in the same RFP as CRSP. This would be similar to the single RFP used to fill the ASI and



1           ASI Prime capacity requirements. Thus, the total RFP would be for at least 3,000 MW, less  
2           any amount to be procured from DG resources.

3   **Q.   Why do you believe that CRSP will have few benefits for “all of Georgia Power’s**  
4   **customers”?**

5   A.   The Georgia Power witness panel consistently acknowledged that subscribers would  
6   receive all of the direct fuel clause impacts associated with a CRSP subscription. (Tr. 205)  
7   The only mechanisms by which “all customers” would benefit would be if a portion of the  
8   CRSP procurement is unsubscribed. CRSP *might* be unsubscribed if there is insufficient  
9   demand – this is highly doubtful given that current demand appears to exceed 1,400 MW  
10   and the CRSP capacity currently proposed is 950 MW.

11   A portion of the CRSP procurement might also be unsubscribed if companies fail to extend  
12   a CRSP subscription after the initial term. The Georgia Power witness panel failed to  
13   provide much detail on how renewals are expected to work, (Tr. 614) so we are assuming  
14   that Georgia Power will seek to meet the interests of its customers by providing for simple  
15   renewals on identical terms. Accordingly, we think it highly likely that if the renewals are  
16   economically advantageous, subscriptions would be extended until no longer available  
17   (due to PPA expiration). If subscription renewals are not economically advantageous due  
18   to changes in fuel costs, then any relinquished CRSP subscriptions would revert to “all of  
19   Georgia Power’s customers,” but would not provide any benefits.

1 **Q. Would 3,000 MW of renewable energy procurement be consistent with a**  
2 **“disciplined” approach?**

3 A. The Georgia Power witness panel consistently acknowledges that it does not have a  
4 quantitative basis for its 1,000 MW proposal, instead referencing a preference for a  
5 “disciplined” approach. (Tr. 195) Considering the financial advantage of initiating  
6 procurement now, as well as operating under the constraint that any procurements are cost-  
7 effective, we believe that it would be undisciplined to pursue anything less than the  
8 maximum possible annual deployment level of renewable energy through this IRP.

9 In 2016, SACE suggested three criteria for limiting the scale of the 2016 REDI program.  
10 Those criteria included an evaluation of the Company’s 2016 RCB Framework studies, and  
11 suggested that 4,000-5,000 MW of renewable resources were operationally feasible over  
12 the next three years. For reasons discussed below, we believe that those studies likely now  
13 support the feasibility of at least 8,000 MW. Due to the many Commission-approved solar  
14 investments, the Company estimates that it will have 3,200 MW in place, plus whatever is  
15 approved in this proceeding.<sup>1</sup> This means that today, there remains an opportunity for at  
16 least 4,800 MW.

17 Respecting operational and implementation risk, Georgia Power witnesses were questioned  
18 by several parties regarding any staffing or operational reasons that would limit the size of  
19 the procurement, but did not identify any specific level at which such concerns would be  
20 important. Furthermore, the witnesses explained that the reason the RCB Framework

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<sup>1</sup> According to the Company’s response to Data Request STF-JKA-4-4, With CRSP, solar would increase to 4,200 MW. We disagree with Company Panel Witness Grubb’s opinion that this reflects “getting close” to the 8,000 MW level studied in the 2016 IRP. (Tr. 647)

1 analysis was limited to one 1,000 MW increase per resource type is that the general trends  
2 studied in 2016 remain valid. (Tr. 647)

3 In 2016, the main operational constraint on renewable energy up to 8,000 MW was that  
4 solar resources reach a “point between 4000 and 5000 MW of distributed solar in which  
5 [the system] can no longer recommit to avoid bottom out conditions.” (2016 Solar  
6 Analysis, p. 6) In 2016 testimony, SACE noted that the associated bottom out costs were  
7 primarily experienced in the first few years of the analysis period, and did not identify any  
8 other constraints up to the 8,000 MW maximum resource level studied by Georgia Power  
9 in 2016.

10 Furthermore, with the development of “flexible” solar plants, these constraints are even  
11 less material. Flexible solar plants are operated to allow the utility to utilize solar to  
12 contribute to essential grid services, by allowing system operators to curtail or under-  
13 schedule the solar resource in order to provide regulation or spinning reserves, ramping  
14 services, and the ability to respond to unexpected drops in demand. In a study of the Tampa  
15 Electric system, utilizing “full flexibility” resulted in solar providing production cost  
16 savings all the way up to 28% of annual energy demand.<sup>2</sup> In comparison, “must-take” solar  
17 provided production cost savings up to 14% and conventional curtailment to 19% of annual  
18 energy demand.<sup>3</sup> Based on this analysis, we believe that the 2016 RCB Framework requires

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<sup>2</sup> The Company Panel Witnesses each stated that they were unfamiliar with “flexible solar” and the study of the Tampa Electric system. (Tr. 422-424, see also Tr. 391-392)

<sup>3</sup> Energy and Environmental Economics, *Investigating the Economic Value of Flexible Solar Power Plant Operation* (October 2018).

1 updates to address these additional resource capabilities, and that the potential for  
2 operational constraints at the 8,000 MW level may no longer be applicable.

3 We note that Florida Power & Light has recently proposed a substantial expansion of solar  
4 power. FPL's Ten Year Site Plan recently filed with the Florida PSC includes individual  
5 years in excess of 1,000 MW (with one year as high as 1,200 MW)<sup>4</sup> and has also proposed  
6 a community solar program called SolarTogether that, if approved, will include 1,490 MW  
7 of solar over the next two years. FPL's self-build projects have often been constructed  
8 under contract by a firm that sponsored the Tampa Electric study, and we anticipate that  
9 FPL will rely on this "full flexibility" solar deployment strategy as part of its ambitious  
10 plans. It is evident that an annual renewable energy procurement rate of 333 MW is well  
11 below that of Georgia Power's peers.

12 Since Georgia Power did not identify any reasons<sup>5</sup> that it could not develop at a rate of  
13 more than 333 MW per year (up to the next IRP cycle), we are suggesting that the  
14 Commission consider FPL's rate of 1,000 MW per year as a feasible amount for Georgia  
15 Power to develop through its renewable energy procurements.

16 The second criterion SACE suggested in 2016 for limiting renewable energy procurement  
17 would be balancing current opportunities with the opportunity for future cost savings.

18 Georgia Power's witness panel cited this concern as well, although supporting analysis in  
19 filings or data request responses could not be located. In 2016, detailed review of this topic

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<sup>4</sup> Florida Power & Light, Ten Year Site Plan (April 1, 2019), page 54.

<sup>5</sup> Company Panel Witness Grubb did identify staffing concerns with the quantity of distributed generation projects.  
(Tr. 402)

1 suggested that beyond 2021, there would be little benefit to waiting for further price  
2 declines. As described below, we now express the economic advantage of commissioning  
3 solar projects in 2019 rather than postponing.

4 The final criterion SACE suggested was consideration of renewable energy investments by  
5 Georgia Power affiliates. Since 2016, these have actually been reduced, due to the net effect  
6 of the sale of Gulf Power. We further note from SACE's *Solar in the Southeast, 2018*  
7 *Annual Report* that "Mississippi Power serves the smallest customer base but exhibits the  
8 highest solar ratio within Southern Company." On a *watts per customer* basis, Mississippi  
9 Power had almost twice as much solar in 2018 as Georgia Power (821 W/C compared to  
10 426 W/C).<sup>6</sup> This further illustrates the potential for Georgia Power to pursue higher solar  
11 penetration.

12 In summary, the criteria set out in 2016 support the development of at least 3,000 MW over  
13 a three year period through renewable energy procurements. This is based on our  
14 observation in 2016 that the operational constraints were temporary (which the Company  
15 has not updated), and FPL's proposed solar development pace of 1,000 MW per year. The  
16 4,800 MW technical constraint also creates the opportunity to add an additional 1,000 MW  
17 in an all-source procurement or, even more, if the Commission adds Plant Wansley's  
18 capacity to the 2022-2023 RFP. It is technically feasible to support both 3,000 MW of  
19 renewable energy procurements and to procure additional resources in the 2022-2023 RFP,  
20 even considering the 3,200 MW of solar in the pipeline, to reach a total of 8,000 MW.

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<sup>6</sup> Southern Alliance for Clean Energy (2019). *Solar in the Southeast, 2018 Annual Report*.

1 **Q. Please explain why it would be economically advantageous to commission renewable**  
2 **energy projects (specifically solar photovoltaic) in 2019 rather than waiting for**  
3 **continued cost declines?**

4 A. SACE testimony from Georgia Power’s 2016 IRP expressed that, “Solar PPA prices could  
5 decline by about \$5/MWh in nominal terms by 2021 (roughly 10%), and then remain  
6 roughly the same over the following five years. This flat trend is due to a near balance  
7 between the federal tax credit phase-out (which increases PPA costs) and the decreasing  
8 cost trend.”<sup>7</sup>

9 The most significant change since the 2016 IRP is that, in June 2018, the Internal Revenue  
10 Service (IRS) issued guidance on how projects qualify for the Investment Tax Credit  
11 (ITC).<sup>8</sup> Previously, projects qualified based on the date they were “placed into service.”  
12 The IRS now applies the ITC based on when the project “commences construction” and  
13 then must have a “continuous program of construction” and be placed into service within  
14 four years.

15 In response to a question from Commissioner Pridemore, Company Witness Bush  
16 explained the step-down, phase-out schedule of the ITC, “You’d have to begin construction  
17 this year to get the 30 percent tax credit. Next year it drops to 26 percent, and then to 22  
18 percent and then...10 percent after that.” (Tr. 174)

19 In Exhibit SACE-IRP-3, we compare the forecast Levelized Cost of Energy (LCOE) for  
20 projects commencing construction in 2023 with projects commencing construction in 2020

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<sup>7</sup> Georgia PSC Docket 40161, Direct Testimony of John D. Wilson, page 17, lines 17-21.

<sup>8</sup> IRS “Commence Construction Guidance” (June 22, 2018).

1 (and therefore eligible for 26% Investment Tax Credit). A 4-year project started in 2020  
2 and completed by 2023 could have a 4% lower LCOE, and thus PPA price, than a project  
3 started in 2023.

4 For this assessment, SACE relied on forecasts from the National Renewable Energy  
5 Laboratory (NREL) and Lazard. The most recent Annual Technology Baseline (ATB)  
6 produced by NREL indicates \$30.51/MWh, \$28.79/MWh, \$27.33/MWh, \$26.39/MWh  
7 and \$25.47/MWh for 2019-2023, respectively.<sup>9</sup> These are unsubsidized price forecasts.

8 For a start date in 2020, projects should be eligible for a 26% Investment Tax Credit, which  
9 should reduce LCOE for utility-scale solar projects by approximately \$2.17/MWh.<sup>10</sup> The  
10 ITC would only afford 10% for projects commencing construction in 2023 and the impact  
11 on LCOE would be reduced to approximately \$0.83/MWh.

12 Commencing construction in 2020 with as little as 5% of overall project cost in that year  
13 will allow a project to safe harbor the 26% ITC. Continuous construction (anticipated in  
14 our analysis at 5% incremental spend per year for 2021-2022 and the remainder in 2023)  
15 will enable the project to benefit from additional annual cost decreases. The weighted  
16 composite LCOE for a 4-year project (2020-2023) with the 26 % ITC is below the projected

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<sup>9</sup> National Renewable Energy Laboratory (NREL) “Annual Technology Baseline” (ATB) 2018 Data. The ATB is a compilation of 9 generation cost projections. Using the low range of Solar-Utility PV (R&D case) from Kansas City as a representative proxy.

<sup>10</sup> The full 30% Investment Tax Credit reduces LCOE for utility-scale solar projects between \$2-\$3/MWh. Lazard, *Levelized Cost of Energy v.12* (November 2018).

1 LCOE for a project in 2023 with the 10 % ITC. The best forecasts suggest that costs would  
2 actually be *higher* if Georgia Power waits for further price declines.

3 **IV. Plant Wansley**

4 **Q. Why do you recommend that Georgia Power include Plant Wansley in the 2022-2023**  
5 **RFP?**

6 A. Plant Wansley is operated relatively infrequently and may not represent a positive  
7 economic value to Georgia Power customers. According to data obtained from the US  
8 Energy Information Administration, Plant Wansley units 1 and 2 have operated at capacity  
9 factors of less than 35% since 2012.

10 **Q. Didn't Georgia Power's unit retirement study find that Plant Wansley units 1 and 2**  
11 **remain cost-effective?**

12 A. Yes, but this evaluation was in comparison to a combined cycle unit. Considering the low  
13 capacity factor that Plant Wansley Units 1-2 have been operated at for at least five years,  
14 we would question whether this was an appropriate comparison. Georgia Power would not  
15 acquire a combined cycle unit to run at a 25-35% capacity factor. The findings from the  
16 unit retirement study are simply insufficient to determine whether the market can provide  
17 adequate and economic capacity to replace Plant Wansley.

18 **Q. Are you recommending that the Commission order that Plant Wansley be retired in**  
19 **2022?**

20 A. No, we are recommending that the Commission direct Georgia Power to modify the 2022-  
21 2023 RFP to include Plant Wansley Units 1-2. Georgia Power should also be directed to  
22 defer major investments in Plant Wansley Units 1-2 until the results of the 2022-2023 RFP



1 are determined. In the event that the market cannot provide adequate and economic  
2 capacity during the 2022-2023 RFP, the Company would have the ability to continue  
3 operating Plant Wansley Units 1-2.

4 Our recommendation is based on Georgia Power's approach to Plant Bowen, as discussed  
5 in the 2019 IRP (p. 10-71), and on the recommendations of SACE witness Mark Detsky.  
6 Mr. Detsky describes how all bids in an all-source procurement can be evaluated to  
7 compare to an identified resource need. Following his approach, the company should use  
8 the capacity expansion model to identify several cost-effective portfolios to meet capacity  
9 needs in the following systems:

- 10 • A system including both Plant Bowen and Plant Wansley, including any required or  
11 deferred maintenance or environmental compliance investments
- 12 • A system including Plant Wansley, but not Plant Bowen
- 13 • A system with neither Plant Wansley nor Plant Bowen

14 The results of this analysis would indicate which portfolios (including or excluding the  
15 coal units) would be most cost-effective, and thus indicate whether Georgia Power should  
16 request decertification for Plant Bowen, Plant Wansley, or neither.

17 **Q. Why would this be an improvement on Georgia Power's unit retirement study?**

18 A. Rather than only comparing Plant Wansley to a combined cycle unit, the approach we  
19 recommend would include a large number of options. Furthermore, Georgia Power would  
20 evaluate the market-derived options in the context of Georgia Power's system, rather than  
21 using a simple head-to-head analysis with a combined cycle unit.

1 **V. “Extraordinary Advantage” Invitation**

2 **Q. What do you recommend with respect to longer-term capacity needs for Georgia**  
3 **Power?**

4 A. Georgia Power has proposed a 2026-2028 RFP for capacity needs that it currently  
5 anticipates. We understand that the Company intends for this RFP to be issued at about the  
6 same time as the 2022-2023 RFP. During the Company’s direct testimony, we noted that a  
7 number of parties appeared to suggest that delay of the 2026-2028 RFP might afford  
8 Georgia Power the opportunity to take advantage of price declines in battery storage or  
9 other technologies.

10 If the Commission decides to delay or otherwise not approve the proposed 2026-28 RFP at  
11 this time, it could nonetheless direct Georgia Power to seek out particularly strong  
12 opportunities for meeting longer-term system needs.

13 Georgia law includes a particularly useful provision known as the “extraordinary  
14 advantage” standard, which the Commission most recently applied to authorize Georgia  
15 Power to acquire low-cost wind power resources.<sup>11</sup> One option would be to include in the  
16 RFP an explicit invitation for “extraordinary advantage” projects that would be completed  
17 after 2023.

18 For example, a major renewable energy project requiring a substantial transmission  
19 commitment, or a battery storage project requiring development of significant supply chain  
20 infrastructure might be proposed. If some of the associated manufacturing were to be

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<sup>11</sup> Commission Rule 515-3-4-.04(3)(f)(3). See Docket No. 37854.

1 proposed as new load for Georgia Power, the manufacturing might itself be a source of  
2 “extraordinary advantage.”

3 Such projects could be evaluated using the same modeling approach recommended by Mr.  
4 Detsky after the initial portfolios are selected. If the projects further reduce the net present  
5 value of the revenue requirement associated with some or all of the recommended  
6 portfolios, then Georgia Power could determine to recommend those projects to the  
7 Commission as meriting approval under the “extraordinary advantage” standard.

8 **VI. Additional Sum**

9 **Q. Georgia Power has proposed significant changes to its additional sum since the 2016**  
10 **IRP and DSM proceedings. What do you recommend?**

11 A. We are generally supportive of the amount of additional sum that Georgia Power is  
12 requesting. However, we believe that the specific design of the additional sum incentives  
13 includes several flaws. Also, we believe that a convergence of demand side, customer-  
14 sited, and supply side options will increase over the coming years, and that the Commission  
15 should establish an additional sum policy that is consistent across all resources through the  
16 following three recommendations.

- 17 • Base the additional sum on an annual benefit of 1 cent per kWh for demand side or  
18 other resources<sup>12</sup> that are primarily operated by the Company.

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<sup>12</sup> We note that while the Company’s current proposal includes only DSM resources and resources primarily developed by another company, there is the prospect of privately-developed but Company-operated resources. Flexible solar and battery storage might be procured via a PPA, but with the operational deployment decisions made by the Company. For resources that are primarily operated by the Company, the PPA terms might be structured such that the Company bears greater risk and responsibility for the performance of the asset than in a more conventional PPA. With this performance responsibility, the Company could earn the additional sum at a

1           • Base the additional sum on an annual benefit of 0.5 cents per kWh for resources that  
2           are primarily developed by a third party.

3           • Recovery of the additional sum should coincide with cost recovery (e.g., for DSM  
4           programs during the program year, for solar PPAs over the lifetime of the contract).

5           For the additional sum associated with DSM programs, we suggest several additional terms  
6           to provide the Company with appropriate incentives.

7           • Recovery of the additional sum for DSM programs should be based on the net present  
8           value of the 1 cent per kWh of net savings for each DSM program based on the average  
9           forecast measure life, up to a maximum of five years.

10          • Recovery of the additional sum for DSM programs should use a sliding scale approach  
11          to encourage achievement of certified energy savings goals while ensuring cost  
12          effective program implementation – if the reported net energy savings fall below 75%  
13          of the certified energy savings goal for a program, the Additional Sum will be collected  
14          at 0.75 cents per kWh saved, or if savings exceed 125% of the program goal, collected  
15          at 1.25 cents per kWh saved.

16          • For residential programs only, allow the Company budget flexibility to increase  
17          program goals by up to 50% per year for cost-effective programs.

18          We believe this approach will provide the Company with an appropriate return that is  
19          consistent with Commission rules and incentives that will help promote customer benefits.

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rate similar to those in the Company-operated DSM programs. If the Commission adopts this recommendation, we would anticipate a more in-depth Commission investigation of how to determine the degree of operational control in a PPA and hence level of additional sum earned.

1 **Q. Why are you generally supportive of the amount of additional sum that Georgia**  
2 **Power is requesting?**

3 A. We have benchmarked the Company's proposed additional sum against its overall  
4 earnings, and against other similar performance incentive mechanisms across the country.  
5 While we have not identified a quantitative method for establishing mathematical  
6 equivalence, the Company's proposal is within a range that appears reasonable.

7 For purposes of benchmarking, we are utilizing the Company's proposed DSM additional  
8 sum basis of cents per kWh, but based on annual performance rather than first-year  
9 performance.

10 For the DSM programs, a 4 cent per kWh first-year additional sum is approximately the  
11 same as a 1 cent per kWh first-year additional sum for a program with an average measure  
12 life of five years. This is based on a discount rate of 7%.<sup>13</sup>

13 For renewable energy PPAs, the REDI program's 8.5% shared savings incentive is slightly  
14 less than 0.5 cents per kWh, and the Company's proposed 10% shared savings incentive is  
15 slightly higher than 0.5 c/kWh. This is based on the Company's forecast \$5.0 million  
16 annual 2018/2019 REDI program additional sum,<sup>14</sup> assuming a 24.5% capacity factor. We  
17 relied upon the REDI value since the Company has not projected a specific value for the  
18 CRSP additional sum. Since the Company's forecast capacity factor for REDI or CRSP

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<sup>13</sup> U.S. Energy Information Administration, *Assumptions to the Annual Energy Outlook 2019: Electricity Market Module* (February 2019).

<sup>14</sup> Hearing exhibit HR-1-8.

1 projects is not known, the 24.5% capacity factor is based on the actual performance of the  
2 six ASI Prime projects in 2017.<sup>15</sup>

3 **Q. How have you benchmarked the Company's proposed additional sum against its**  
4 **overall earnings?**

5 A. We reviewed the Company's 2018 Annual Surveillance Report<sup>16</sup> and the Company's  
6 2018 retail sales.<sup>17</sup> The Company's net operating income (excluding the refund due to  
7 customers) is \$1.5 billion, and its 2018 retail sales were 85.5 TWh. This equates to total  
8 net income of 1.8 cents per kWh sold.

9 However, since cost recovery for DSM programs and PPAs is done on a cash basis  
10 (requiring no additional debt or equity), we also calculated the portion of the total net  
11 income that relates to the shareholder premium over the long term cost of debt.<sup>18</sup> The  
12 shareholder returns (net of the cost of money, assume to be the same as long term debt)  
13 are about 0.9 cents per kWh sold.

14 Based on this admittedly simplistic benchmarking, a payment of 1 cent per kWh of DSM  
15 savings or 0.5 cents per kWh of renewable energy PPAs appears to be reasonably similar  
16 to the Company's opportunity to earn returns from conventional capital investments.

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<sup>15</sup> Calculated from US Energy Information Administration Form 923 data.

<sup>16</sup> Georgia Power Company, *Annual Surveillance Report for the Year Ended December 31, 2018*, Georgia Public Service Commission Docket No. 36989 (March 15, 2019).

<sup>17</sup> US Energy Information Administration, Form 861M.

<sup>18</sup> The long term cost of debt is 3.98% and the total retail financing rate is 8.39%, so the shareholder premium is approximately 53% of total net income.

1 **Q. How have you benchmarked the Company’s proposed additional sum against other**  
2 **similar performance incentive mechanisms across the country?**

3 A. Since 2010, SACE has reviewed a large number of energy efficiency performance  
4 incentives across the country. In preparation for this proceeding, we have reviewed recent  
5 literature on performance incentives, as well as closely reviewed recent filings from  
6 Arizona and Minnesota.

7 Georgia Power’s additional sum for DSM programs is consistent with other utilities.  
8 According to a 2015 ACEEE report, Georgia Power’s 2013 additional sum represented  
9 58% of program costs, which is substantially higher than all other utilities evaluated, other  
10 than those in Minnesota.<sup>19</sup> However, in 2017, Georgia Power’s additional sum represented  
11 33% of program costs,<sup>20</sup> higher than most states but more in the mainstream. The ACEEE  
12 report describes 13 states, including Georgia, that utilize a shared savings type of incentive.  
13 Several states, such as Texas, Missouri, Arkansas, and Kentucky have a shared savings rate  
14 that is higher than Georgia Power’s 8.5% of net benefits rate. Some of these states have  
15 caps on the incentive. Noting that many details of Georgia Power’s accounting and  
16 program structure differ from those in other states, we conclude that Georgia Power’s  
17 additional sum for DSM is among the more generous incentives, but is not an outlier.

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<sup>19</sup> Seth Nowak et al., *Beyond Carrots for Utilities: A National Review of Performance Incentives for Energy Efficiency*, American Council for an Energy-Efficient Economy Report U1504 (May 2015).

<sup>20</sup> Georgia Power Company, *Certified Demand-Side Management Programs, Fourth Quarter 2017 Programs Status Report* (February 15, 2018); *2017 Demand Side Management (“DSM”) True-Up Filing* (March 18, 2018), Docket No. 40162.

1 **Q. What did you conclude from your review of Arizona and Minnesota?**

2 A. Arizona and Minnesota were discussed during the testimony of Company Panel Witness  
3 Smith, during which it was suggested that these two states currently use a cents per kWh  
4 incentive. (Tr. 259) Our review of these two utilities, as well as commission orders related  
5 to multiple utilities in each state, suggests that neither state actually pays an incentive on a  
6 cents per kWh basis.

7 Our review of Arizona's policy focused on Arizona Public Service (APS). APS currently  
8 operates under a shared net benefits type of performance incentive.<sup>21</sup> The rules set a cap of  
9 1.25 cents per first-year kWh, which may be the source of the misunderstanding. We  
10 calculated that the actual APS shared net benefits incentive for 2016 was 0.74 cents per  
11 first-year kWh.<sup>22</sup>

12 While 0.74 cents per first-year kWh is significantly less than Georgia Power's proposed 4  
13 cents per first-year kWh additional sum, APS is also authorized to recover lost fixed costs  
14 (LFCR) associated with transmission and distribution infrastructure.<sup>23</sup> The LFCR rate  
15 applies to cumulative energy efficiency savings and distributed generation, and varies by

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<sup>21</sup> Arizona Corporation Commission, *In the Matter of the Application of Arizona Public Service Company for Approval of its 2013 Demand Side Management Implementation Plan and Request for Relief from Arizona Administrative Code R14-2-2404 (E) and (H)*, Decision No. 74406, Docket No. E-01345A-12-0224 (March 19, 2014).

<sup>22</sup> Based on data in Table 8 of Arizona Public Service Company, *Demand Side Management Annual Progress Report* (March 1, 2017). Filed in Docket No. E-00000U-17-0057.

<sup>23</sup> Arizona Corporation Commission, *In the Matter of the Application of Arizona Public Service Company for a Hearing to Determine the Fair Value of the Utility Property of the company for Ratemaking Purposes, to Fix a Just and Reasonable Rate of Return Thereon, and to Approve Rate Schedules Designed to Develop Such Return*, Decision No. 73183, Docket No. E-01345A-11-0224 (May 24, 2012).



1 customer class. The LFCR is capped at 1% of total utility revenues. For 2016 savings, the  
2 LFCR rate was 3.1 c/kWh saved for residential and 2.3 c/kWh saved for C&I.<sup>24</sup>

3 We were not able to calculate the total incentive per first-year kWh for APS from the  
4 available data because (a) there are some differences between the basis for the performance  
5 incentive and LFCR (e.g., different annual kWh energy efficiency savings) and (b) it is not  
6 clear how many years energy efficiency savings are maintained within the LFCR.  
7 However, our review of the filings suggested that the LFCR is being applied for at least  
8 three years. Assuming three years LFCR, the total recovery for APS would be around 9  
9 c/kWh saved.

10 Minnesota also operates under a shared net benefits incentive framework. ACEEE's report  
11 lists Minnesota utilities as having even higher incentives than Georgia Power, but the  
12 Minnesota Public Utility Commission substantially revised the incentive in 2016. Xcel  
13 receives a tiered percentage: In 2019, Minnesota electric utility incentives will be capped  
14 at 10% of net benefits or 30% of program costs, whichever is less.<sup>25</sup> According to one  
15 example included in staff briefing papers, the resulting incentive would likely range  
16 between 5 and 9 cents per kWh saved, although no incentive would be awarded for an  
17 achievement level of less than 1% kWh saved per retail sales.<sup>26</sup>

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<sup>24</sup> See Attachment C, Schedule 4 in Arizona Public Service Company, *In the Matter of the Application of Arizona Public Service Company for Approval of Lost Fixed Cost Recovery Mechanism*, Docket No. E-01345A-11-0224 (January 13, 2017).

<sup>25</sup> Minnesota Public Utilities Commission, *Energy Agenda: In the Matter of Commission Review of Utility Performance Incentives for Energy Conservation Pursuant to Minn. Stat. § 216B.241, Subd. 2c*, Docket E,G-999/CI-08-133 (May 25, 2016).

<sup>26</sup> Minnesota Public Utilities Commission, *Staff Briefing Papers: In the Matter of Commission Review of Utility Performance Incentives for Energy Conservation Pursuant to Minn. Stat. § 216B.241, Subd. 2c*, Docket E,G-999/CI-08-133 (May 25, 2016).

1           Thus, while other state incentive mechanisms result in lower revenues to the utility than  
2           the additional sum proposals for Georgia Power, Arizona and Minnesota’s policies result  
3           in incentives (including Arizona’s LRAM) that are similar or even higher. However, under  
4           Minnesota’s policy, Georgia Power would have to roughly double its DSM program  
5           impacts to earn even the 5 cent per kWh incentive return.

6   **Q.   Why do you believe that a convergence of demand side, customer-sited, and supply**  
7   **side options will be only increasing over the coming years?**

8   A.   The complexity of energy resources has been increasing with technology innovation. In  
9   this proceeding, there has and will be extensive discussion of battery storage and “flexible”  
10   solar (and wind) resources, as well as electric vehicle charging. Historically, utility control  
11   of resources has been generally equivalent to ownership or long-term capacity contracts  
12   with responsibility for fuel costs. With these emerging technologies, there comes the  
13   opportunity for utility ownership and resource control to assume much more complex,  
14   adaptable relationships.

15       As a result, contracting for either “must-take” power or “firm capacity” is no longer the  
16       only feasible option. For must-take power, a shared savings approach to the additional sum  
17       has been the preferred approach in Georgia. And for firm capacity, a per-kW additional  
18       sum has been preferred. But for future projects, which may involve a mix of energy,  
19       capacity, and ancillary service benefits, neither of these approaches may be ideal.

20       Recognizing that the primary product that Georgia Power sells to benefit its customers is  
21       energy, we recommend that the Commission establish an additional sum policy that is  
22       consistent, reflecting each resource’s contribution to providing the benefits of energy.

1 **Q. Why do you recommend that the Commission base the additional sum on an annual**  
2 **benefit of 1 cent per kWh for demand side or other resources that are primarily**  
3 **operated by the Company?**

4 A. First, we believe this incentive will be roughly equivalent to the amount requested by the  
5 Company for its DSM program additional sum. Second, as we discussed above, this  
6 amount is reasonable in terms of the Company's current overall earnings opportunity and  
7 in comparison to other states' energy efficiency performance incentive. Third, we  
8 recommend an annual energy savings benefit, rather than first-year energy savings as  
9 proposed by the Company, to provide incentives for longer-term savings.

10 The main flaw with the Company's proposal is that it pays the same incentive for a measure  
11 or program that provides benefits for one year as it does for a measure or program that  
12 provides energy savings for many years. For example, the Company's proposed residential  
13 behavioral program has a measure life of 1 year, and its HEIP program has a measure life  
14 of over ten years.

15 We believe this incentive structure results in an inequitable sharing of benefits between the  
16 utility and its retail customers. If the Company were to shift budget from the HEIP program  
17 to the behavioral program, it could well increase total first-year savings. But the  
18 consequence for its customers would be reduced total, long-term savings (because the  
19 HEIP program has a ten-year measure life).

20 Because an incentive structure based on first-year savings provides the Company with the  
21 opportunity to benefit more, while retail customers benefit less, we are recommending a  
22 smaller incentive paid out over multiple years. The Company's approach is inconsistent

1 with Georgia law – as Company Panel Witness Smith acknowledged, the Company did not  
2 explicitly discuss equitable sharing in its application or testimony (Tr. 604) and this  
3 omission is evident in the problem described herein. Our recommended approach better  
4 aligns benefit sharing between the Company and its customers.

5 We also recommend expanding this incentive structure beyond DSM resources, to apply  
6 to any resources that the Company may acquire through an RFP that would be primarily  
7 operated by the Company. There is a prospect of privately-developed but Company-  
8 operated resources in response to the CRSP, capacity RFP, and (if the Commission accepts  
9 our recommendation), an additional REDI solicitation. Flexible solar and battery storage  
10 might be procured via a PPA, but with the operational deployment decisions made by the  
11 Company. For resources that are primarily operated by the Company, the PPA terms might  
12 be structured such that the Company bears greater risk and responsibility for the  
13 performance of the asset than in a more conventional PPA. With this performance  
14 responsibility, the Company could earn the additional sum at a rate similar to those in the  
15 Company-operated DSM programs.

16 **Q. Why do you recommend that the Commission base the additional sum on an annual**  
17 **benefit of 0.5 cents per kWh for resources that are primarily developed by a third**  
18 **party?**

19 **A.** Our rationale is basically the same: rough equivalence to the Company's proposal,  
20 reasonable against benchmarks, and reflecting an appropriate balance of risk and reward.  
21 The primarily difference between the DSM/company-operated additional sum and this

1 additional sum is that the Company bears less risk for resources primarily developed by a  
2 third party.

3 As acknowledged by the Company's Panel Witnesses, the Company did not explicitly  
4 discuss risk in relation to the additional sum in its application or pre-filed testimony. (Tr.  
5 603-604, 611) DSM, company-operated PPAs, and must-take/firm capacity PPAs all  
6 involve a long-term commitment to an energy or capacity resource that involve the risk  
7 that the Company's projection of future fuel, capacity, and related costs (summarized as  
8 avoided costs) are incorrect. For example, some have opined that the Company could have  
9 achieved lower overall costs to customers by investing in DSM or larger market resource  
10 procurements than in capacity resources over the past decade because it under-estimated  
11 certain cost and schedule risks.

12 The higher risk associated with DSM/company-operated PPAs is that the Company bears  
13 a risk of imprudence, either by poor results from DSM programs or by poor operation of  
14 PPA resources. The company avoids these risks by dedicating high-quality staff to  
15 administer these activities properly, staff who could be redirected to other profitable  
16 functions.

17 **Q. What about lost revenues, should they be a factor?**

18 **A.** Lost revenues are the first of the three statutory standards for the additional sum in Section  
19 46-3A-9 of the Georgia Code, the other two being changed risks and equitable benefit  
20 sharing, as we have already discussed. The Company did not identify lost revenues as a  
21 basis for its additional sum proposals (only considering it as part of the rate impact

1 calculation, which the Company uses to limit, not incentivize, its DSM programs). (Tr.  
2 603, 610)

3 We agree with the Company that lost revenues should not be considered in setting the  
4 additional sum. First, Georgia Power's 2018 Annual Surveillance Report clearly indicates  
5 that the Company's net income is in excess of its earnings band, and it is not having any  
6 difficulty in recovering revenues with the current level of DSM programs. Second, the  
7 Commission considers whether to conduct a rate case every three years, which provides  
8 the Company with an opportunity to adjust rates due to lost sales on a frequent basis. There  
9 is little opportunity for the Company to have inadequate revenue due to DSM programs.

10 **Q. Why do you recommend that recovery of the additional sum should coincide with cost**  
11 **recovery?**

12 A. This approach is consistent with the Company's recommendation, and is similar to the  
13 Company's concurrent recovery of capital investments through depreciation with its cost  
14 of capital. For all PPAs, the additional sum would be recovered based on the actual energy  
15 generation in each year. In the case of storage, a measure of energy utilization of the storage  
16 technology would substitute for generation.

17 **Q. Why do you recommend that recovery of the additional sum for DSM programs**  
18 **should be based on the net present value of the 1 cent per kWh of net savings for each**  
19 **DSM program based on the average forecast measure life, up to a maximum of five**  
20 **years?**

21 A. Cost recovery for DSM programs occurs during the program year in which the costs are  
22 incurred (on an expense basis). Thus, although the benefits of the programs occur over the

1           measure lives of the program, we are recommending that cost recovery include the  
2           additional sum, consistent with prior Commission orders.

3           We are recommending that, for purposes of the additional sum, forecast measure lives  
4           should be capped at five years for two reasons. First, the 5-year net present value of 1 cent  
5           per kWh is slightly more than 4 cents per kWh. Because the Company's proposed  
6           behavioral programs would earn less under our recommended additional sum, the overall  
7           additional sum is approximately the same as the Company's proposal.

8           Second, in SACE's experience, measure life estimates for energy efficiency programs tend  
9           to be less precise beyond five years. While there is no exact point at which less attention is  
10          paid to measure life, the main purpose of measure life estimates is to inform cost-benefit  
11          calculations. Beyond five years, the impact of one more or less year of measure life on a  
12          cost-benefit calculation becomes less significant due to discounting. Establishing a DSM  
13          additional sum based on full measure life forecasts would be more consistent with the  
14          approach we recommend for PPAs, but could increase disputes over measure life  
15          accounting. We view a five-year cap on measure life as a good balance between  
16          incentivizing the Company to promote long-lived measures and programs, and avoiding  
17          unnecessarily complex and uncertain evaluation studies.

18   **Q.    Why do you recommend a sliding scale approach to encourage achievement of**  
19   **certified energy savings goals?**

20   **A.    The Company has proposed that recovery of the additional sum for DSM programs should**  
21   **use a sliding scale approach to encourage achievement of certified energy savings goals**

1 while ensuring cost effective program implementation. Our recommendation differs  
2 slightly from the Company's approach. It is both less punitive and more rewarding.

3 The Company has a good track record of meeting its DSM program goals. We do not think  
4 a severe reduction in the additional sum for underperformance is necessary, although some  
5 reduction should occur. Accordingly, if the reported net energy savings fall below 75% of  
6 the certified energy savings goal for a program, the additional sum should be collected at  
7 0.75 cents per kWh saved.

8 However, the Company has a track record of exceeding its shared savings goals  
9 significantly. For example, the Company's proposed 2017 programs anticipated a benefit-  
10 cost ratio of 3.9 (using the Program Administrator Cost Test), but its actual results had a  
11 benefit-cost ratio of 6.1, increasing the net benefits by 55%. Coincidentally, the proposed  
12 2020 programs also anticipate a benefit-cost ratio of 3.9 (using the PACT). Georgia Power  
13 has a track record of exceeding the metric on which its additional sum is awarded.

14 Because Georgia Power is good at achieving its results, we are suggesting a slightly higher  
15 target for a higher additional sum rate: If savings exceed 125% of the program goal, the  
16 additional sum should be collected at 1.25 cents per kWh saved.

17 **Q. Why do you recommend that the Company have budget flexibility to increase**  
18 **residential program goals by up to 50% per year for cost-effective programs?**

19 **A.** We recommend that the Company have the opportunity to increase individual program  
20 goals, up to a cap of a 50% budget increase for each year. This should only be allowed if



1           the program is cost-effective using the total resource cost test and the utility cost test, and  
2           should advance the following three goals.

3           First, *customers should have the opportunity to participate in programs year-round.* SACE  
4           has good experience with Duke Energy's application of similar budget flexibility in North  
5           and South Carolina. Duke Energy is able to quickly adapt its budget to changing market  
6           conditions in order to offer consistent programs to its customers. Program closures or  
7           reduced marketing are not used to control the budget, which affords customers year-round  
8           opportunities to participate in the programs.

9           Second, *the Company should maintain the ability to quickly respond to market interest in*  
10          *residential programs.* In 2016, the Commission recognized that residential programs are  
11          more difficult to operate than commercial DSM programs, and encouraged the Company  
12          to achieve at least 25% of its savings from residential programs. Allowing the Company to  
13          cost-effectively increase individual program budgets without having to cut other popular  
14          program budgets will help the Company more quickly respond to market interest in  
15          residential programs.

16          Third, *budget flexibility would facilitate ongoing stakeholder involvement and program*  
17          *improvements in low-income residential programs.* There has been considerable discussion  
18          about certified low-income residential programs in the DSM working group and this  
19          proceeding. We would like the opportunity to work with the Company to find cost-  
20          effective ways to increase participation by low-income customers in its DSM programs.  
21          Removing budget constraints would facilitate such ongoing program improvements.

1 **Q. Your approach is quite different from prior Commission additional sum orders and**  
2 **the Company's proposals. Is change really needed?**

3 A. Change is occurring. As the Company has noted in its proposals for the additional sum, the  
4 Commission's prior approach results in disincentivizing residential energy efficiency  
5 programs and, as avoided costs decline, could disincentivize renewable energy PPAs.  
6 Furthermore, with the emergence of flexible solar, battery storage, and electric vehicle  
7 charging demand, there are new opportunities that do not fit the prior approach.

8 We believe this approach will provide the Company with an appropriate return that is  
9 consistent with Commission rules and incentives that will help promote customer benefits.

10 **Q. Does this conclude your testimony?**

11 A. Yes.

## **John D. Wilson Deputy Director for Regulatory Policy, Southern Alliance for Clean Energy**

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### **EXPERIENCE**

#### **Southern Alliance for Clean Energy**

Deputy Director for Regulatory Policy, Asheville, NC and Washington, DC, 2007 – present

- Manage technical and regulatory advocacy
- Supervise staff and consultants, direct regulatory litigation
- Conduct supporting research and policy development across all program areas

#### **Galveston-Houston Association for Smog Prevention**

Executive Director, Houston, TX, 2001 – 2006

- Member, Regional Air Quality Planning Committee
- Member, Transportation Policy Technical Advisory Committee
- Member, Steering Committee, TCEQ Interim Science Committee
- Awards & recognition from the City of Houston, *Houston Press*, and environmental groups

#### **The Goodman Corporation**

Senior Associate, Houston, TX, 2000 – 2001

- Transportation and Urban Planning Consulting
- Project Manager, Houston Main Street Corridor
- Project Manager, Houston Downtown Circulation Study
- Project Manager, Austin Corridor Planning
- Project Manager, Ft. Worth Berry Street Corridor Initiative

#### **Florida Legislature**

Senior Legislative Analyst and Technology Projects Coordinator, Office of Program Policy Analysis and Government Accountability, Tallahassee, FL, 1997- 1999

- Coordinator, Florida Government Accountability Report, 1999
- Coordinator, Project Management Software Implementation, 1999
- Creator and Editor, *Florida Monitor Weekly*, 1998 - 99
- Author or team member for reports on water supply policy, environmental permitting, community development corporations, school district financial management and other issues – most recommendations implemented by the 1998 and 1999 Florida Legislatures

#### **Florida State University**

Environmental Management Consultant, Tallahassee, FL, 1997

- Project staff, *Florida Assessment of Coastal Trends*, 1997

#### **Houston Advanced Research Center**

Research Associate, Center for Global Studies, The Woodlands, TX, 1992 - 96

- Coordinator, Houston Environmental Foresight, 1993 - 96
- Coordinator, Rio Grande/Rio Bravo Basin Initiative, 1992 - 94
- Secretary, Task Force on Climate Change in Texas, 1992 - 94
- Researcher, *Policy Options: Responding to Climate Change in Texas*, 1992 - 93

#### **US Environmental Protection Agency**

Student Assistant, Climate Change Division, Washington, DC, 1991 - 92

- Special Achievement Award, 1991

### **EDUCATION**

#### **Harvard University**

Master in Public Policy, John F. Kennedy School of Government, 1992

- Concentration areas: Environment, negotiation, economic and analytic methods

#### **Rice University**

Bachelor of Arts, conferred *cum laude*, 1990

- Majors: Physics (with honors) and history

#### **Additional Training and Experience**

Spanish language; Advanced computer skills; Served and led political committees for the Sierra Club and Clean Water Action; Certified Master Wildlife Conservationist, Leon County Extension Service

### **PUBLICATIONS**

#### **Expert Witness Testimony**

John D. Wilson, Direct Testimony on Behalf of Southern Alliance for Clean Energy, *Georgia Power Company's 2016 Integrated Resource Plan and Application for Decertification of Plant Mitchell Units 3, 4A and 4B, Plant Kraft Unit 1 CT, and Intercession City CT*, Georgia Public Service Commission Docket No. 40161 (May 3, 2016).

John D. Wilson, Direct Testimony on Behalf of Southern Alliance for Clean Energy, *Regarding the Okeechobee Clean Energy Center Unit 1*, Florida Public Service Commission Docket No. 150196-EI (October 14, 2015).

John D. Wilson, Direct Testimony on Behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy, *In the Matter of Petition of the Office of Regulatory*

*Staff to Establish Generic Proceeding Pursuant to the Distributed Energy Resource Program Act, Act No. 236 of 2014, Ratification No. 241, Senate Bill No. 1189, South Carolina Public Service Commission Docket No. 2014-246-E (December 23, 2014).*

Hamilton Davis and John D. Wilson, Joint Direct Testimony on Behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy, *In the Matter of Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750MW Combined Generating Plant Near Anderson, SC*, South Carolina Public Service Commission Docket No. 2013-392-E (December 10, 2013).

John D. Wilson, Direct Testimony on Behalf of Southern Alliance for Clean Energy, *In the Matters of Georgia Power Company's 2013 Integrated Resource Plan and Application for Decertification of Plant Branch Units 3 and 4, Plant McManus Units 1 and 2, Plant Kraft Units 1-4, Plant Yates Units 1-05, Plant Boulevard Units 2 and 3, and Plant Bowen Unit 6*, Georgia Public Service Commission Docket No. 36498 (May 10, 2013).

John D. Wilson, allowable ex parte briefing on behalf of Southern Alliance for Clean Energy, South Carolina Coastal Conservation League, and Upstate Forever, in *Progress Energy Carolinas, Incorporated's Integrated Resource Plan (IRP)*, South Carolina Public Service Commission Docket NO. 2011-8-E and in *Duke Energy Carolinas, LLC – 2011 Integrated Resource Plan*, South Carolina Public Service Commission Docket NO. 2011-10-E (December 21, 2011).

John D. Wilson, allowable ex parte briefing on behalf of Southern Alliance for Clean Energy, South Carolina Coastal Conservation League, and Upstate Forever, in *South Carolina Electric & Gas Company's Integrated Resource Plan*, South Carolina Public Service Commission Docket NO. 2011-9-E (June 1, 2011).

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# BRYAN A. JACOB

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An accomplished **climate change and environmental sustainability practitioner**, Bryan is the **Solar Program Director** for the **Southern Alliance for Clean Energy (SACE)**. This role includes a broad-spectrum of activities to promote solar power across the Southeast.

Prior to joining SACE, Bryan launched **Climate Coach International** to help organizations understand **climate-related risks and opportunities** then design and implement practical and cost-effective **climate mitigation and adaptation strategies**.

From 1993-2015, Bryan coordinated and managed environmental initiatives for **The Coca-Cola Company**. He was the architect of the Climate Protection Strategy that propelled The Coca-Cola Company to a leading position within the beverage industry and broader corporate sector.

## PROFESSIONAL EXPERIENCE

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### **SOUTHERN ALLIANCE FOR CLEAN ENERGY (SACE)** **Solar Program Director**

**Atlanta, GA**  
*June 2017 - present*

Bryan leads activities to promote solar power across the Southeast. These activities range from conducting research on solar power trends to advocacy on utility resource planning and specifically include collaboration with stakeholders in the solar energy development industry.

### **CLIMATE COACH INTERNATIONAL, LLC** **Founder/owner and “Chief Climate Coach”**

**Alpharetta, GA**  
*March 2015 - present*

Bryan founded Climate Coach International to offer “bench strength” for climate leadership. Mitigation, Adaptation, Engagement, and Advocacy are priorities for Climate Coach International. Example projects include:

- Assessing the competitive landscape and constructing a climate maturity matrix to inform the leadership posture for an apparel client.
- Modeling emission reduction trajectories for a sportswear client using various Science-Based Target-setting methodologies.
- Developing a corporate engagement platform on Energy Productivity for an environmental NGO.
- Curriculum development and instruction on the Food-Water-Energy Nexus for an academic client.

**THE COCA-COLA COMPANY***see Position History below***Atlanta, GA***April 1993 – March 2015*

- Created and administered a Climate Protection Strategy that propelled The Coca-Cola Company to a leading position within the beverage industry and broader corporate sector.
- Pioneered the Company's signature "eKOfreshment" program on HFC-free Refrigeration with direct accountability for program scale-up to 100,000 deployments (2008-2010).
- Institutionalized energy consumption standards for cold drink equipment, achieving a 40% improvement in energy-efficiency of coolers and vending machines, saving customers an estimated \$440 million per year and delivering corresponding emissions reductions of approximately 3.1 million metric tons/year.
- Promoted comprehensive energy conservation and clean energy programs that improved energy-efficiency 20%, delivered a cumulative energy cost avoidance of over \$1 billion since 2004 and reduced greenhouse gas emissions by more than 1 million metric tons/yr.
- Designed and coordinated representation at the annual U.N. Climate Conferences since 2009 (COP15/Copenhagen) where I organized a spectacular keynote address from our Chairman and CEO, Muhtar Kent. I also arranged for this to mark the first launch of our PlantBottle™ innovation.
- Represented the Company as spokesperson on climate protection topics; examples range from briefing the U.S. House of Representatives Committee of Science and Technology about HFC-free Refrigeration to a live television interview at The Weather Channel to promote Earth Hour.
- Cultivated productive relationships with environmental stakeholders – particularly WWF (World Wildlife Fund) as partners in their ambitious Climate Savers program and Greenpeace who we collaborated with in promoting natural refrigeration.
- Co-chaired a cross-functional, pan-geographic team to establish an end-to-end, value chain target to reduce the carbon footprint of the 'drink in your hand' 25% by 2020.
- Recruited and trained/oriented/commissioned 29 "Climate Ambassadors" from across the global System to champion the new 'drink in your hand' carbon footprint commitment.
- Partnered with ACCO (Association of Climate Change Officers) to design the Future Climate Change Officer Fellowship and hired a candidate from the inaugural class.
- Collaborated with Coca-Cola Enterprises (now Coca-Cola Refreshments) to "jump start" deployment of hybrid-electric trucks; now more than 850 in the United States.
- Developed/managed annual greenhouse gas inventory complete with third-party verification/assurance and assembled annual reports to CDP, Carbon Disclosure Project.
- Commissioned an assessment of climate risks and opportunities including preparation of Risk Factor disclosure in the SEC 10-K filing (the first beverage company to do so).
- Created an Environmental, Occupational Safety & Health (EOSH) Portal for associates to access key materials then managed bi-monthly Positive Currents newsletter (2010-2011).
- Established a program to offset carbon emissions from corporate aviation.
- Administered annual budgets up to \$1.3 million; managed small teams of direct reports.

Position History at The Coca-Cola Company

<b>Director, Climate Protection</b>	<b>August 2011 – March 2015</b>
<b>Manager, Energy Efficiency &amp; Climate Protection</b>	<b>January 2006 – August 2011</b>
<b>Environmental Technologies Manager</b>	<b>June 1999 – December 2005</b>
<b>Environmental Programs Manager</b>	<b>February 1997 – June 1999</b>
<b>Environmental Programs Coordinator</b>	<b>April 1993 – February 1997</b>

Prior Work Experience

<b>ANHEUSER-BUSCH, INC</b>	<b>Atlanta, GA</b>
<b>Olympic Job Opportunities Program (OJOP) Athlete</b>	<b>January 1992 – September 1992</b>
<b>JORDAN, JONES &amp; GOULDING</b>	<b>Atlanta, GA</b>
<b>Technician II (Co-Op Student)</b>	<b>December 1987 – August 1991</b>

EDUCATION

<b>GEORGIA INSTITUTE OF TECHNOLOGY</b>	<b>Atlanta, GA</b>
<b>Bachelor of Civil Engineering (BCE), <i>summa cum laude</i></b>	<b>1993</b>

ADDITIONAL INFORMATION

<b>Two-time U.S.A. OLYMPIAN</b> <b>Weightlifting</b>	<b>1992 Barcelona &amp; 1996 Atlanta</b>
<b>THE CLIMATE (REALITY) PROJECT</b> <b>Trained and delivered the slides that became “An Inconvenient Truth”</b>	<b>January 2007</b>
<b>SOLAR LIGHT FOR AFRICA</b> <b>Board of Directors</b>	<b>2008 - present</b>
<b>SCIENCE BASED TARGETS (WRI/WWF/CDP)</b> <b>Technical Advisory Group</b>	<b>2014-present</b>

## Solar Development Cost 2020-23 vs 2023 Construction Schedule

	Annual Progress	NREL ATB LCOE <sup>1</sup> (\$/MWh)	<b>26% ITC impact<sup>2</sup></b> (\$/MWh)	NET LCOE (\$/MWh)	Weighted LCOE contribution
2020	5%	\$28.79	-\$2.17	\$26.62	\$1.33
2021	5%	\$27.33	-\$2.17	\$25.16	\$1.26
2022	5%	\$26.39	-\$2.17	\$24.22	\$1.21
2023	85%	\$25.47	-\$2.17	\$23.30	\$19.81
					<b>\$23.61</b>

	Annual Progress	NREL ATB LCOE <sup>1</sup> (\$/MWh)	<b>10% ITC impact<sup>2</sup></b> (\$/MWh)	NET LCOE (\$/MWh)	Weighted LCOE contribution
2023	100%	\$25.47	-\$0.83	\$24.64	<b>\$24.64</b>
					<b>+ 4%</b>

*Indicative results in 2016\$*

Sources:

1. National Renewable Energy Laboratory (NREL), *Annual Technology Baseline (ATB)*. 2018 data obtained from <https://data.nrel.gov/files/89/2018-ATB-data-interim-geo.xlsx> using the low range of Solar - Utility PV (R&D case) from Kansas City as a representative proxy.
2. Lazard, *Levelized Cost of Energy*, v.12 (November 2018), <https://www.lazard.com/media/450784/lazards-levelized-cost-of-energy-version-120-vfinal.pdf>