PUBLIC DISCLOSURE VERSION

STATE OF GEORGIA

BEFORE THE
GEORGIA PUBLIC SERVICE COMMISSION

In Re: 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 1-5, Plant Boulevard Units 2 and 3, and Plant Bowen Unit 6	)	**Docket No. 36498**
and	)	
In Re: Georgia Power Company's Application for the Certification of its Amended Demand Side Management Plan	)	**Docket No. 36499**

POST-HEARING BRIEF OF
SOUTHERN ALLIANCE FOR CLEAN ENERGY, INC.

Pursuant to Rule 515-2-1-.04 of the Georgia Public Service Commission ("Commission") and the Commission's February 13, 2013 Procedural and Scheduling Order in the above-captioned proceedings, Southern Alliance for Clean Energy, Inc. ("SACE") respectfully files this post-hearing brief.

INTRODUCTION

Georgia Power Company ("Georgia Power" or "the Company") seeks approval of its 2013 Integrated Resource Plan ("IRP"), one of the most significant long-term resource plans the Company has presented to this Commission. The Company also seeks approval of its

decertification application and amended Demand Side Management ("DSM") plan, both of which stem from the IRP.[1]

The Company's IRP reflects the shifting economics of traditional supply-side generation in Georgia and across the nation. As part of its Mercury and Air Toxics Standards ("MATS") Compliance Plan, the Company has requested approval to decertify and retire 2,093 MW of fossil fuel-fired generating capacity, including ten coal-fired units.[2] These units are no longer economic to operate. The Company assumed the unavailability of much of this capacity in 2011 and secured four natural gas power purchase agreements ("PPAs"), three of which the Commission certified in March 2012.[3] (Tr. 457-58). Retirement of these units is not unexpected and is in the best interests of all Georgia Power customers. No party to these proceedings opposes their decertification and the Company's request should be approved.[4]

This IRP also represents a critical juncture for the Company's investment in cleaner, lower cost resources. The Company has made some commendable progress on this front since its last IRP. Its Advanced Solar Initiative ("ASI") represents a significant step forward for solar in Georgia. Similarly, the recent purchase of wind from southwestern Oklahoma is a good first step toward harvesting this important and increasingly cost-effective resource. Meanwhile, the Company has succeeded in delivering to its customers the least cost, priority resource in Georgia

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[1] On June 25, 2013, three days before post-hearing briefs were due in these dockets, counsel for Public Interest Advocacy ("PIA") Staff circulated a Proposed Stipulation executed by Georgia Power and PIA Staff ("Proposed Stipulation"). SACE understands that the Proposed Stipulation will be filed with the Commission on June 28, and that Georgia Power and PIA Staff will seek approval of the IRP, decertification application and Amended DSM plan as presented in and amended by the Proposed Stipulation.

[2] The Commission approved the expedited decertification and retirement of Bowen Unit 6 on April 23, 2013. Order Adopting Stipulation, Commission Docket No. 36498, at 4.

[3] *See* Final Order, Commission Docket No. 34218 (March 26, 2012).

[4] SACE does not take a position in these dockets on the Company's related cost recovery requests.

— energy efficiency. In the past two years, the Company has exceeded its gross energy savings goals for the 2010 certified DSM programs, and has proposed to continue these programs (with some modifications) along with one additional program.[5] These positive developments show that Georgia Power can and should continue to invest in these resources, which make economic sense for the Company and its customers.

However, despite this progress, the Company's 2013 IRP contains several flaws that prevent it from presenting an economic and reliable mix of demand- and supply-side resources, as required under Georgia law. For example, the Company's proposal to convert four coal-fired units at Plant Gaston to inefficiently burn natural gas is uneconomic and should be rejected. Two independent analyses, one by expert witnesses for PIA Staff and one by SACE, conclude that the conversion is uneconomic. The Company has never operated a coal-to-gas converted boiler, and its own analysis shows that the conversion's costs would outweigh its benefits to customers unless these aging units have run more than [redacted] years longer than the Company has operated any fossil fuel plant. When a more reasonable 60-year, rather than 80-year, operating life assumption is used, it is undisputed that the conversion is not economic. Moreover, even using the Company's flawed 80-year assumption, the conversion is uneconomic when the Company's unreasonable capacity value assumption is corrected due to excess reserves. Thus, the Company's proposed conversion at Plant Gaston is flawed in two ways and would result in one bad outcome — economic harm to customers.

In addition, the 2013 IRP falls short on providing Georgia Power customers with low cost, low risk, and reliable electricity. The Company should increase its commitment to solar

[5] The Company also seeks to decertify its Residential Water Heating program, but the measures for this program will be incorporated into the Home Energy Improvement program. (Georgia Power Ex. 2 at 2).

and energy efficiency resources now, and in the long-term, by expanding its renewable and DSM portfolios, and improving its modeling and evaluation of these resources. Solar and energy efficiency bring significant savings and value to the Georgia Power system and to customers, as demonstrated by the evidence in the record and echoed by the extensive public witness testimony in favor of these resources.

As many voices have urged, the Commission should direct the Company to invest in additional solar resources in the short term in light of the tremendous value solar energy offers to Georgia Power customers. Solar power is primarily an energy resource, and is fuel free. Expanding solar now with a mix of additional large-scale and distributed generation projects will reduce costs and risks of future cost increases for Georgia Power customers over the IRP's twenty-year planning horizon. In addition, the Commission should order the Company to improve the way it values solar power across its programs and the way it models solar and other renewable energy resources.

The Commission should also order the Company to revise its DSM portfolio in accordance with SACE's Enhanced DSM Portfolio, which provides roughly $3.5 billion in utility cost savings and substantially lower bills for most Georgia Power customers, as compared to the Company's Proposed Portfolio. The Enhanced DSM Portfolio is a realistic plan developed from the Company's own Aggressive Portfolio. It makes key assumptions more reasonable and corrects for the Company's improper avoided cost and lost revenue calculations, which are based on a uniform escalation rate and single fuel cost recovery ("FCR") rate and should be cured in future IRPs. The Enhanced DSM Portfolio offers more programs to each customer class, providing more opportunity for customers to participate, saving them energy and money. With

almost three years of experience running a successful portfolio of efficiency programs, now is the time for Georgia Power to ramp up its delivery of energy efficiency.

To encourage Georgia Power to pursue energy efficiency, the Commission should adopt SACE's performance-based Additional Sum proposal, which provides a strong incentive to save energy and results in greater customer savings as compared to the Company's proposal. The Commission should also require an annual, transparent DSM true-up, based on evaluation, measurement and verification ("EM&V") data, to track program spending and performance, and adopt program flexibility guidelines so that it is clear what program changes are permissible without a certificate amendment and what notice and process is required. Finally, the Company should prepare an energy efficiency potential study prior to the 2016 IRP filing to ensure accurate, up-to-date efficiency inputs for the IRP. All of these elements are critical ingredients to successful delivery of energy efficiency.

Finally, the Company should improve the methodology of its Unit Retirement Study and the Commission should require more certain cost information before ruling on the Company's request to fuel switch at McIntosh Unit 1. The risks of fuel and modification cost increases are two examples of the type of risk that the Company should evaluate in future IRPs as part of a more comprehensive risk analysis.

In sum, despite some progress, Georgia Power's 2013 IRP is not a plan for meeting the demand and energy needs of its customers in an economical and reliable manner, as required by Georgia law. The Company failed to consider all available resources, including both demand-side and supply-side options, on a fair and consistent basis. To improve the plan, SACE respectfully requests that the Commission take the following action, as discussed in detail in the remainder of this brief:

1. Approve the Company's decertification requests.

2. Reject the proposed conversion of Plant Gaston Units 1-4 and decertify those units.

3. Direct the Company to expand its commitment to solar power in the short term by increasing solar in the ASI, or under the construct of ASI, by 600 MW, including both distributed generation and utility-scale solar projects.

4. Establish a "value of solar" proceeding within the existing avoided cost docket, by the end of 2014, to determine the full and fair value of solar resources, and require Georgia Power to file a solar valuation study in that docket that is specific to its service territory and incorporates the full range of costs avoided by solar generation.

5. Direct the Company to improve its resource evaluation and modeling of solar, wind and other renewable technologies for future IRPs.

6. Direct the Company to finalize a revised DSM portfolio, including program filings, participation projections and DSM budgets for 2014 to 2016, in accordance with the Enhanced DSM Portfolio, as presented in SACE Exhibit 20.

7. Adopt SACE's proposed performance-based Additional Sum.

8. Direct Georgia Power in future IRPs to calculate its avoided cost and lost revenue estimates based on its own cost and revenue forecasts (rather than using a uniform escalation rate) and to use more than one FCR rate forecast for revenue forecasting purposes in the DSM planning tool.

9. Require the Company to submit an annual energy efficiency true up filing, in support of its DSM tariff update, 90 days before the proposed effective date of the DSM tariff update, and direct the Company, PIA Staff and SACE to work together to develop specific filing requirements and calculation methodologies for the true up process.

10. Direct the Company to provide Commission Staff and the Demand Side Management Working Group ("DSMWG") with proposed changes to the DSM program plan prior to the implementation of those changes. The Company, Commission Staff and SACE should work together to determine which program changes require Staff approval in advance of implementation.

11. Direct the Company to prepare an energy efficiency potential study for filing one year in advance of the 2016 IRP.

12. Direct the Company to consider SACE's and PIA Staff's recommended changes to its Unit Retirement Study methodology.

13. Review the Company's updated economic assumptions, including negotiated contract terms and costs for coal, coal transportation and required plant modifications, prior to deciding whether to approve the coal switch at Plant McIntosh Unit 1.

14. Direct the Company to expand its IRP analysis to address the major types of risk its system faces, and to identify the resources that are most effective at mitigating and/or managing those risks.

15. Direct the Company to provide Intervenors, and not just Commission Staff, with working copies of all models used in the development of future IRPs and IRP updates, as well as supporting documentation or workpapers necessary to understand the models and assumptions used therein, upon Intervenor request and execution of confidentiality agreements as necessary.

LEGAL FRAMEWORK

The Commission's review of Georgia Power's 2013 IRP, decertification application, and amended DSM application is governed by the Integrated Resource Plan Act, O.C.G.A. § 46-3A-1 *et seq*. (2012), and the Integrated Resource Planning Chapter of the Commission's Rules, 515-3-4-.01 *et seq.*

An IRP must contain "the utility's program for meeting the requirements shown in its forecast in an economical and reliable manner, [and] the utility's analysis of all capacity resource options, including both demand-side and supply-side options," and must "set[] forth the utility's assumptions and conclusions with respect to the effect of each capacity resource option on the future cost and reliability of electric service." O.C.G.A. § 46-3A-1(7). A utility must consider "all resources reasonably available to reliably meet future energy service demands … on a fair and consistent basis" and develop a base case IRP based on "the most economic and reliable combination of potential demand and supply-side resources." Commission Rules 515-3-4-.02(25) and 515-3-4-.05.

In deciding whether to approve the plan, the Commission must determine whether, among other things:

> (1) The utility's forecast requirements are based on substantially accurate data and an adequate method of forecasting;
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> (2) The plan identifies and takes into account any present and projected reductions in the demand for energy which may result from measures to improve energy efficiency in the industrial, commercial, residential, and energy-producing sectors of the state; and
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> (3) The plan adequately demonstrates the economic, environmental, and other benefits to the state and to customers of the utility, associated with [] possible measures and sources of supply [including] (A) Improvements in energy efficiency [and] . . . (F) ... demand-side options.

O.C.G.A. § 46-3A-2(b). In addition to approving or rejecting a plan, the Commission may approve a plan with modifications or provide an alternate plan, based upon the evidence of record presented at the hearing on the plan. Commission Rule 515-3-4-.06(4)(d).

In terms of decertification and retirement, no utility may decrease the capacity of a generating unit of an electric power plant by more than 15 percent of its demonstrated capacity in megawatts for serving the utility's Georgia retail customers without first obtaining a certificate or amendment to a certificate, as appropriate. O.C.G.A. § 46-3A-3(b); *see also* Commission Rule 515-3-4-.08 (providing supply-side resource certificate amendment filing requirements and procedures).[6] The Commission may also examine and revoke a certificate, upon application of a utility or upon its own motion, if it determines that a resource is no longer needed. O.C.G.A. § 46-3A-6.

Utilities must obtain a certificate of public convenience and necessity ("certificate") from the Commission prior to making expenditures for a demand-side capacity option. O.C.G.A. § 46-3A-3(a); s*ee also* Commission Rules 515-3-4-.09 and .10 (providing demand-side resource certificate and amended certificate filing requirements and procedures). In addition to costs of

[6] Georgia Power filed its 2013 Decertification Application pursuant to O.C.G.A. § 46-3A-3 and Commission Rule 515-3-4-.08. (*See* Tr. 13, Georgia Power Ex. 1, Decertification Application at 1.

any certificated demand-side capacity option, utilities recover an additional sum as determined by the Commission to encourage the development of such resources. O.C.G.A. § 46-3A-9; Commission Rule 515-3-4-.11(3)(b).

ARGUMENT

I. The Company's decertification requests are reasonable, are in the best interests of ratepayers, and should be approved.

At the center of this IRP is the Company's request to decertify and retire fifteen coal- and oil-fired units representing approximately 2,100 MW of capacity. The decertification requests build upon actions taken in the 2011 IRP Update, in which the Company assumed the unavailability of much of this capacity and secured Commission certification of three natural gas power purchase agreements to fill its assumed need.[7]

Despite disagreeing with certain aspects of the Company's unit retirement analysis, both SACE and PIA Staff agree with the Company's overall conclusion: these units are no longer economic to operate and should be retired. In fact, no party to this proceeding opposes the decertification requests, and Commission approval is warranted by the evidence in the record.

A primary driver of the Company's retirement decisions is the U.S. Environmental Protection Agency's MATS rule. The MATS rule and other forthcoming standards will protect public health and the environment from harmful emissions and other byproducts of fossil fuel combustion. For the units proposed for retirement, which are among the oldest and least efficient in the Company's fleet, it is not cost-effective to install the necessary environmental controls. For example, the cost of bringing the aging Plant Branch Units 3 and 4 into compliance

[7] *See generally* Commission Docket No. 34218.

with the MATS rule is roughly equal to the total combined cost of MATS compliance for *all* the units the Company plans to control or fuel switch. (Tr. 34). Therefore, it is simply not in the best interest of customers for the Company to retrofit these units, and the same holds true for McManus 1 and 2, Kraft 1-4, Yates 1-5 and Boulevard 2 and 3.

Despite identifying several flaws in the Company's unit retirement analysis, SACE and PIA Staff concur with the Company's ultimate decision. SACE witness George W. Evans found the Company's analysis flawed in several respects, including the assumptions with respect to natural gas and CO_2 prices. (*See* discussion *infra* Section IX.A). These flaws tend to bias the results in favor of continued operation of coal-fired units over retirement, and if corrected, the case for retirement becomes even more compelling. (Tr. 1409).

Similarly, PIA Staff experts Randall J. Falkenberg and Philip M. Hayet found the Company's high natural gas fuel forecast to be unreasonably high. PIA Staff determined that the although the Company's high fuel forecast would support continued operation of Plant Branch Units 3 and 4, under lower, more reasonable gas assumptions, the retirement of these units is in the best interest of ratepayers – in fact, they are "the leading candidates for retirement." (Tr. 815, 827). PIA Staff's analysis likewise confirmed the Company's decision to retire and decertify McManus 1 and 2, Kraft 1-4, Yates 1-5 and Boulevard 2 and 3. (Tr. 827, 831).

The Company, SACE and PIA Staff all testified in favor of the proposed decertifications, and no party has opposed them. The evidence shows that decertifying these units is in the best interest of ratepayers and will not affect reliability because the Company retains significant excess capacity even with these retirements. (Tr. 177). Accordingly, the Commission should approve the Company's decertification requests.

II. The Company's proposed conversion of Plant Gaston Units 1-4 is uneconomic and should be denied, and these units should be decertified.

One area where the Company, PIA Staff and SACE do *not* agree is concerning the Company's MATS compliance plans for Plant Gaston Units 1-4. Here, the Company proposes to do something it has never done before: convert four aging coal-fired boilers, all more than 50 years old, to serve as inefficient peaking units for the next three decades. The Company owns 50% of Southern Electric Generating Company ("SEGCo"), which owns Plant Gaston, and purchases 50% of the capacity and energy from these units. (Tr. 1416; Georgia Power Ex. 1, IRP Technical Appendix Vol. 2, Unit Retirement Study at 32). The Company estimates that the proposed conversion will cost its customers roughly $[redacted] in environmental capital and conversion costs alone, in addition to significant lifetime operation and maintenance costs and fuel costs. (Georgia Power Ex. 1, IRP Technical Appendix Vol. 2, Unit Retirement Study at 31-32). The conversion is expected to be marginally economic, according to the Company's cost estimates, but this is only if unreasonable assumptions are made regarding the units' probable lifespan, and further, only if speculative and unrealistic assumptions are made regarding capacity revenues. (*See* Tr. 816). Without these assumptions, the proposed conversion is not economic for ratepayers, who would bear significant costs without realizing *any* net benefits.

The Company's analysis hinges in large part on the assumption that the converted units will have total operating lives of more than 80 years. (*See* Tr. 2240). Yet, it is undisputed that Georgia Power has never operated any fossil-fuel fired unit for 65 years, let alone 80, nor has it operated any unit with a coal-to-gas converted boiler for any length of time. (Tr. 2243-44). The average operating life of the Company's fossil fuel-fired units is approximately 50 years and Gaston Units 1-4 are already between 51-53 years old. (*See* Tr. 2246; Georgia Power Ex. 1, IRP Technical Appendix Vol. 1, Resource Ledger at 7). Georgia Power is proposing in this IRP to

decertify the only four fossil fuel-fired units on its system that have operating lives exceeding 60 years (e.g., Yates 1-3 and McManus 1). (Tr. 2242-43). Moreover, the Company assumes in the IRP that new coal-fired generating units will have a [redacted] year life and that new gas-fired peaking units will have a [redacted] year life. (Georgia Power Ex. 1, IRP Technical Appendix Vol. 1, Generation Technology Data Book, at 28, 154). Therefore, the evidence shows that the Company's 80-year assumption is unreasonable.

SACE witness Evans assumed a more reasonable operating life of 60 years. (Tr. 1418). This assumption is more in line with the Company's actual operating experience. In addition, it properly accounts for the greater operational costs and added stress the conversion would place on the units. Because the conversion would involve burning natural gas in boilers that were designed to burn coal, the operating costs of the units will be higher than most gas-fired peaking units (which do not have boilers) on the Southern Company system. (Tr. 1416-17). As a result, the converted units would likely operate for only a few hours of the year and would be required to stop and start much more frequently than any coal-fired units. (Tr. 1417). Such operation will place unusual stress on the units and likely shorten their operating lives, which already exceed five decades. (*Id.*)

Assuming a 60-year life span, it is undisputed that the proposed conversion would not benefit customers. (Tr. 1419, 2247). According to the Company's own analysis, the converted Gaston units would not achieve their "break even" point until they are more than [redacted] old. (Tr. 2249-51; SACE Ex. 31). In other words, the benefits of the conversion would not outweigh the costs until the units have been operating more than [redacted] years longer than the Company has operated *any* fossil-fuel fired unit. (Tr. 2250-51; *see also* Tr. 1419). Rather than providing benefits, the conversion would have a net cost to customers of more than $[redacted]

compared to removing those units from the Georgia Power system, assuming a 60-year life span. (Tr. 2247-50; SACE Ex. 30). Moreover, unlike other gas units in the Company's fleet, the converted gas units would contribute to excess capacity while providing no large-scale energy benefits. (Tr. 2237-38).

PIA Staff found the proposed conversion uneconomic even accepting the Company's 80-year lifespan assumption. (Tr. 816, 831-32; *see also* Proposed Stipulation at 1-2 ("[t]he PIA Staff's analysis indicated that the retirement of Gaston would be more economic than gas conversion...")). PIA Staff determined that the Company used unrealistic capacity revenue assumptions in support of its conversion analysis. (Tr. 806-807). Specifically, PIA Staff found that the Company's capacity revenue assumptions for Gaston are unreasonable and speculative given current regional reserve margins, which are far above historical levels, and the Company's use of different capacity revenue assumptions to support the proposed retirement of Plant Branch Units 3 and 4 is illogical. (Tr. 807, 804). Removing the capacity revenue assumption for the Gaston conversion, or simply using the same assumptions applied to Branch Units 3 and 4, would reverse the Company's conclusions and make the conversion uneconomic. (Tr. 816).

In its testimony, PIA Staff ultimately considers the retirement of Gaston a "policy decision" for the Commission that "warrants careful consideration" (Tr. 816) and, in the Proposed Stipulation, PIA Staff takes the position that the conversion "is reasonable for the Commission to approve." (Proposed Stipulation at 2). The conversion is clearly uneconomic in light of the unrealistic 80-year assumption and should be rejected on that basis. However, even assuming that the 80-year assumption is reasonable and that the conversion is only marginally uneconomic in light of the unrealistic capacity value assumptions, policy considerations still favor retirement.

The Company is currently long on capacity. (Tr. 177-78). Georgia Power will still have excess capacity even if Plant Gaston Units 1-4 are decertified. *See* Georgia Power Ex. 1, Main IRP Document at 15 and Resource Ledger at 7. Hence, the Company does not need the converted units for "protection against any unforeseen contingencies," which is the sole policy justification for the conversion presented in the Proposed Stipulation. (Proposed Stipulation at 2). This protection would still exist if Plant Gaston Units 1-4 were retired.

Moreover, the Gaston excess capacity comes at a significant cost to ratepayers. According to the Company's unit retirement analysis, the net present value of fuel switching and environmental compliance costs for the Gaston units is $[redacted]. Georgia Power Ex. 1, IRP Technical Appendix Vol. 2, Unit Retirement Study at 31-32. The Gaston conversion will impose this cost on customers without providing significant benefits. (Tr. 2237-38). In this way, the proposed conversion stands in sharp contrast to the Plant McDonough combined cycle units, which the Company has cited as an example of units that provide significant energy benefits despite contributing to current excess reserves, as well as the recent wind purchases and increased investments in solar, both of which provide significant energy benefits. (Tr. 1976-77). Indeed, as Company witness Rozier acknowledged, Gaston is "not as efficient as the McDonough unit, so it obviously would not produce large-scale energy benefits." (Tr. 2238). Unlike resources with significant energy benefits – like solar and wind – the proposed Gaston conversion would impose large-scale costs without providing comparable benefits.

In sum, the proposed conversion of Gaston Units 1-4 is uneconomic. Customers will not realize any net benefits from the conversion unless these units operate for more than [redacted] years longer than Georgia Power has operated any fossil fuel-fired unit. Instead of providing benefits to customers, these inefficient units represent a significant cost to ratepayers. The Gaston

conversion is a "policy decision" only when an 80-year life span is assumed. Under a more reasonable assumption of 60 years, the conversion is not a close call. But under either lifespan assumption, incurring such significant costs to convert the Gaston units into expensive and inefficient peaking units is simply not justified. The Commission should reject the proposed conversion and should instead decertify the units.[8]

III. The Company should increase its commitment to solar energy development.

Georgia Power's Advanced Solar Initiative ("ASI") is a significant step towards the development of solar in Georgia. But the Company must do more to ensure that it is providing its customers with the most cost-effective, low-risk electricity. First, the Company should increase its investment in solar resources now. Second, it should begin to improve the way it values solar power across its programs, which will allow solar to compete fairly based on the full range of benefits it provides. While the former measure is important to expand the Company's commitment to investing in solar resources now, the latter measure, combined with improved modeling as discussed in Section IV, is critical to ensuring the fair consideration of solar going forward and long-term growth of this increasingly cost-effective, low risk resource.

A. Now is the time for Georgia Power to increase its commitment to solar energy.

As SACE witness John Wilson testified, "[n]ow is the time" for Georgia Power to expand its procurement of solar energy. (Tr. 1383; s*ee also* Tr. 1160 (GSEIA witness Karl Rábago stating "the Company should be directed (in the short term) to implement programs to procure additional solar resources" since the cost of solar in Georgia is below the value the Company

[8] Because Georgia Power does not directly own Plant Gaston Units 1-4 and instead purchases from SEGCo 50% of the capacity and energy from these units, the decertification likely would be of the power purchases, not the units themselves. Therefore, "decertify the units" and similar terms, as used in this brief to refer to Plant Gaston Units 1-4, are intended to capture either action, as is appropriate.

receives for this resource)). The costs associated with solar energy continue to fall, and as the early success of the ASI program demonstrates, solar energy offers a tremendous value for Georgia Power's customers, as well as a significant boon to Georgia's economy.

The Company did not evaluate solar power as a system resource in this IRP, which would have allowed its model to select the optimal amount of solar power for the system over the next 20 years. (Tr. 1384). In this way, its planning process failed to consider "all resources reasonably available to reliably meet future energy service demands ... on a fair and consistent basis" as required by Commission Rule 515-3-4-.02(25). As a result, the Company failed to include any new solar power in its resource plan. (*See* Tr. 238-39).

To fill this gap, SACE developed a 2000 MW Enhanced Solar Portfolio as a demonstration of the role that solar power can play in Georgia. (Tr. 1384). As Mr. Wilson testified, this model clearly shows that solar power "is poised to play a cost-effective role in Georgia Power's system as an energy resource." (Tr. 1385). While this simplistic model was not intended for immediate adoption, it illustrates two important truths: that more solar energy in Georgia makes sense for ratepayers today, and that the Company erred by not giving solar fair consideration in its IRP. (*See infra* Section IV).

Solar power offers enormous energy value to customers despite the Company's excess capacity. Solar is primarily an energy resource. Based on SACE's modeling data for the 2000 MW solar portfolio (which used the Company's modeling framework), SACE witness Wilson found that about [redacted] of the system cost savings associated with solar power are fuel and related cost savings. (Tr. 1383; SACE Ex. 3 at 27). The remaining [redacted] capital cost savings is roughly

equivalent to the potential costs associated with the modeled Enhanced Solar Portfolio.[9] (Tr. 1383; SACE Ex. 3 at 27).

As SACE's solar modeling demonstrates, in spite of the Company's lack of near-term capacity need, now is a particularly attractive time to invest in resources that reduce system fuel costs over the long term. (Tr. 1385; SACE Ex. 8-TS). As SACE witness Wilson testified, should fuel costs rise, solar's benefits to customers will grow; and because this resource can be quickly scaled up or back, it is optimal for times of uncertainty about costs and need. (Tr. 1383; *see also* Tr. 1183) (GSEIA witness Rábago emphasizing solar's unique ability to scale up quickly in smaller increments). As a result, investment in solar can act as an important hedge, protecting customers from volatility in natural gas prices, which the Commission has recognized is an important concern. (Tr. 1384).

The Company clearly agrees with this view of renewable energy as a general matter – despite its stated lack of need for *capacity*, Georgia Power recently took advantage of the extraordinary *energy* value offered by Midwest wind PPAs that will bring in lower cost energy and put downward pressure on rates. (Tr. 2115). The same holds true for solar power, which the Company's witnesses agree should be defined primarily as an energy resource. (Tr. 2118). The Company's witnesses further acknowledge that if solar is valued properly, the purchase of additional solar resources will cause no upward pressure on rates. (Tr. 2148).

Two experts in the IRP proceeding – SACE witness Wilson and GSEIA witness Rábago – concluded that 2000 MW of solar could be a realistic target for Georgia and that the Company

[9] SACE benchmarked these cost savings against a projection of potential system costs and a hypothetical revenue recovery model. However, as this model was not intended for immediate adoption, SACE recommends further steps to optimize the manner in which solar power is developed, financed and managed. *See infra* sections III.B and IV.

should begin expanding its solar resources now. (*See* Tr. 1425-26). The Company has testified that in the event the Commission decides to order more solar resources, it should be done "under the general construct of ASI" to ensure that the Company is getting "the lowest cost resource for [its] customers. And that it reflects the value of solar." (Tr. 2139; *see also* Proposed Stipulation at 4). Accordingly, in this proceeding, the Commission should require Georgia Power to expand its commitment to solar power by increasing solar in the ASI, or otherwise increasing solar under the construct of ASI, by 600 MW. Any such expansion of solar should increase investment in both distributed generation and utility-scale solar projects, so as to obtain the unique benefits that both offer to the Company and its customers. This is a realistic near term goal that will provide real benefits to customers, while allowing Georgia's solar market to mature.

B. The Company must determine the true "value of solar."

In addition to requiring more solar now, the Commission should direct the Company to conduct a true valuation of solar energy in the near future. It is not enough for Georgia Power simply to add more solar megawatts to its system in its IRP. It must also determine, in an open and transparent fashion, the fair and true value of solar to its system, and then apply that value not just in its ASI program but across its various solar initiatives and programs.

As Georgia Power notes in its IRP, Georgia has begun to incorporate solar energy into a range of its energy generation initiatives. *See* Georgia Power Ex. 1, IRP Main Document at 10-105 to 10-115 (describing the Green Energy, Large Scale Solar, and ASI programs and Solar QF purchases). In his testimony, SACE witness Wilson specifically recommended a solar power proceeding that would allow the Company and the Commission to "focus on the financial and technological evaluation of solar power in a single proceeding" prior to the completion of the ASI program. (Tr. 1386). GSEIA witness Karl R. Rábago recommended a "value of solar"

analysis resulting in a "full avoided cost approach" to solar energy. (Tr. 1166). A separate proceeding to evaluate solar is critical to fair and full consideration of this resource in the long term. This valuation of solar should consider a range of market structures to ensure that each potentially cost-effective avenue for solar is considered for the benefit of ratepayers. As SACE witness Wilson explained, a solar proceeding would also help the Company to reevaluate and incorporate changes in market costs over time – as solar prices fall, the Company can increase its investment in solar to the benefit of ratepayers. (Tr. 1387). Moreover, as GSEIA witness Rábago testified, updating the valuation of generation resources on a frequent basis "enables regulators and the Company to capture changes in technology, performance, costs, and risks," which is "especially important in rapidly evolving market segments." (Tr. 1162).

A "value of solar" proceeding could be administered within the Company's existing avoided cost docket. The Company's avoided cost methodology has not been reviewed since 1994. (Tr. 266; 1186). Georgia Power's traditional avoided cost methodologies disregard or discount the benefits of clean energy resources that have zero fuel costs, as well as the real risks that clean energy resources can avoid, and for these reasons should be reexamined. (Tr. 1163-64; 1392). As part of the proceeding, the Company should prepare a solar valuation study that is specific to its service territory and incorporates the full range of costs that are avoided by solar generation. The goal of the proceeding should be to establish a valuation methodology that captures the full system benefit of solar resources and creates a process by which the Company can vary its investment as solar prices continue to fall. (*See* Tr. 1160).

The Company claims to have determined the true "value of solar" in its ASI program. (Tr. 2132, 2145-46). However, the Company has not shared its valuation process in its IRP filing, nor is it publicly available. (*See* Tr. 2233). The Company's lack of transparency in how it

calculates avoided costs makes it difficult to determine how Georgia Power quantifies these values, and what factors it considers. (*See* Tr. 1167) (GSEIA witness Rábago stating "I cannot find a publicly available document that describes how the solar avoided cost is calculated" by the Company); (Tr. 2147) (Commissioner Echols asking Company witnesses "how much you actually did study these benefits and consider them?" in the ASI program). As a result, the Commission has no way of knowing how the Company valued solar energy in the ASI program.

Moreover, this valuation *only* applied to the ASI program. The Company fails to incorporate the true benefits of solar into any of its other solar power evaluations or programs. The result is a fragmented, inconsistent approach to solar valuation across its system. As stated previously, this IRP is not just about ASI – a true "value of solar" should form the basis for solar power rates across all of the Company's solar initiatives going forward. If solar is to be treated fairly going forward and its full benefits recognized, the internal inconsistency in the Company's treatment of solar resources must be corrected.

A "value of solar" proceeding will allow for the development of sound methodology, resulting in a consistent, fair and transparent solar purchase price that can be reevaluated on a regular basis. Without it, the Company may resist incorporation of a true "value of solar" beyond the ASI. Indeed, the Company responded to Commissioner Echol's question about whether it would consider raising its avoided costs outside of ASI by stating only that "the avoided cost is the avoided cost." (Tr. 2069-70). If the Company truly believes that solar resources should receive proper credit for the benefits they provide, a value of solar proceeding will hold it to that belief going forward.

In sum, the Commission should require an across-the-board valuation of solar proceeding within the existing avoided cost docket by the end of 2014. This approach will ensure fairness to solar generators and the utility for the benefits solar provides to the system and to ratepayers.

IV. The Company should improve its evaluation and modeling of renewable energy resources, including solar and wind, in future IRPs.

Clean energy resources – particularly solar, wind and biomass – are poised for rapid development in the near term as a result of market forces and technical advances. As SACE witness Wilson testified, these resources have the potential to transform the Southeastern power markets. (*See* Tr. 1387-90). Georgia Power is currently investing in all of these resources to some degree. Yet, Georgia Power did not model any new solar, wind or biomass resources in its system planning model. (*See* Tr. 439-40). The Company appears to assert that allowing solar to compete fairly in the resource mix is "not necessary" despite acknowledging that this modeling provides a "road map" for the Company's decisions over the next 20 years. (*See* Tr. 440-41). This view is at odds with the Company's statutory and regulatory obligations to adequately demonstrate the benefits associated with *all* generation resources and to consider "all resources reasonably available … on a fair and consistent basis." O.C.G.A. §§ 46-3A-1 and 46-3A-2; Commission Rule 515-3-4-.02(25). It is also contrary to best planning practices. Georgia Power's failure to incorporate wind and solar into its IRP leads to a flawed supply-side plan that underutilizes these important resources, and also harms other components of the plan. (*See* Tr. 692 (PIA Staff experts discussing the IRP's failure to integrate the Company's supply-side plan with its transmission planning)).

To correct this planning deficiency, the Commission should require Georgia Power to improve its modeling and evaluation of renewable resources in future IRPs. As noted previously, SACE conducted its own modeling of solar power to fill the void left by Georgia

Power's failure to evaluate (and model) solar as a system resource in this IRP. (*See* Tr. at 2114, 2232). The Company's passive approach to solar is surprising in light of this Commission's order stating that Georgia Power should consider "solar resource options, along with traditional resource options," in the 2013 IRP.[10] It should not be left to intervening parties to perform an analysis that Georgia Power is obligated to conduct. Georgia Power should develop the capability to systematically evaluate solar power and other renewable options by improving its resource characterization and modeling practices for renewable energy.

Improved resource evaluation methodologies will allow the Company to determine within its planning process when renewable energy, such as the Company's recent Oklahoma wind PPA, offers value to customers. (Tr. 1388, 1158). Despite excess capacity, Georgia Power stated that this wind PPA will actually put *downward* pressure on rates over its 20-year life. (Tr. 2115). Going forward, Georgia Power should evaluate these and other cost-effective opportunities as system resources, enabling its model to select the optimal amount of power for each resource in an objective manner. (Tr. 1386).

As mentioned earlier, the Company should work to assess changing market costs for solar and other renewable resources, and systematically evaluate these rapidly maturing energy resources in its future resource planning. The Company should consider not only the rapidly changing costs of clean energy, but also the unique attributes of these resources. As SACE witness Wilson testified, wind and solar provide benefits in terms of geographic diversity and zero fuel cost, and can increase utility operational flexibility and even reliability. (Tr. 1390). The Company should incorporate these benefits into its resource planning. It should develop the capacity to evaluate geographic diversity as a characteristic of clean energy resources and to

[10] Order, Commission Docket No. 36325 (Nov. 29, 2012).

account for the combined impact of geographically diverse renewable resources. (Tr. 1391; *see also* Tr. 1170).

In summary, SACE recommends that the Commission order Georgia Power to improve its modeling and evaluation of renewable resources in future IRPs by:

- Fully evaluating alternative resources, including solar.
- Ensuring the correct valuation of these resources by updating technology assumptions and price forecasts and considering the full benefits of these resources to the system.
- Updating the value of solar and wind power resources using resource planning, financial models and other models.

Without these improvements, Georgia Power cannot achieve an optimal resource plan for its customers. (Tr. 1390). The Commission should require Georgia Power to give each potential resource a fair shot to compete, which will benefit customers by ensuring that the least cost, least risk resources are chosen.

V. The Commission should adopt SACE's Enhanced DSM case and Additional Sum Proposals.

A. SACE's Enhanced DSM Portfolio provides more savings to more customers than the Company's Proposed Portfolio without substantially increasing the bill impact to any customers.

SACE's Enhanced DSM Portfolio would save Georgia Power and its customers $3.5 billion over the planning period, and should be adopted. (SACE Ex. 27 at 17; Tr. 1373). Energy efficiency is the least cost priority resource in Georgia – investment in energy efficiency is the cheapest way for Georgia Power to meet its customers' energy needs. The Company has successfully implemented its DSM portfolio for nearly three years. Yet, as PIA Staff witness Spellman testified, the Company's proposed DSM plan underutilizes cost-effective achievable

efficiency. (Tr. 1085). To ensure that Georgia Power and its customers capture the full benefits of efficiency, SACE developed an expanded DSM case, based on the Company's own data and program concepts but correcting for flawed or unreasonable assumptions. As compared to the Company's proposal, the Enhanced DSM Portfolio offers eight more programs and achieves 70% more energy savings, which translates to bill reductions between 5-12% on average, and reduces bills for the majority of customers in every rate class. (SACE Ex. 27 at 19; SACE Ex. 28 at 16; SACE Ex. 5).

The Enhanced DSM Portfolio is a modified, realistic version of the Company's Aggressive Portfolio. It includes the same fifteen DSM programs that the Company developed and included in its Aggressive case—eight more than the Company's proposed portfolio. The expanded programs enable the Company to reach all customer classes and particularly "hard-to-reach" customer segments with the greatest need, including low income customers.[11] (Tr. 1379).

The Company has explained that the Aggressive Portfolio was never meant to be a "realistic plan of delivery of energy efficiency" but rather was intended to set a ceiling on the amount of available DSM. (Tr. 2418, 2265; *see also* Georgia Power Ex. 1, IRP Main Document at 5.6.3 (describing the aggressive case as a "reference point" to estimate the maximum achievable potential for efficiency)). SACE agrees that the Aggressive Portfolio is not a realistic plan. However, the eight additional program concepts contained in the Aggressive Portfolio analysis (and nowhere else in the record), which were developed over many months in the DSMWG process, are sound. Therefore, SACE used an adjusted version of the Aggressive Portfolio to create the Enhanced DSM Portfolio. The result is an Enhanced DSM Portfolio that achieves significantly more energy savings and participation, and a ratio of economic benefits to

[11] The low income program is described in Georgia Power's response to Hearing Request 3-5, which was filed on June 26, 2013.

rate impact of eight-to-one, significantly more than the three-to-one ratio of the Company's proposed portfolio. (Tr. 595).

To develop the Enhanced DSM case, SACE reduced the customer incentive forecasts from 100% of incremental costs to more reasonable levels, around 50%. (Tr. 1501; 1506). The Company did not object to this reduction to lower incentive levels, though it took issue with the energy savings. (Tr. 2266-67). In fact, as Mr. Legg testified, the Company does not recommend using such high incentive levels as contained in the Aggressive Portfolio. (Tr. 2265 ("[T]he company, as well as the other intervenors, would agree that 100 percent is too high to set that.")). The incentive cost estimates account for more than 80% of annual program cost in the Company's Aggressive Portfolio, and produce inflated overall program costs and rate impacts. (Tr. 1505). The 100% incentive level is unreasonable because Georgia Power can provide a lower incentive and still motivate consumers to adopt energy efficient technologies. As SACE witness Mims testified, top-performing utilities achieve savings that are greater than the savings estimated in the Company's Aggressive Portfolio with less incentives. (Tr. 1505). Georgia Power's consultant and Commission Staff's consultant agree that an incentive level of 50% of incremental cost is best practice. (Tr. 1504; SACE Ex. 21). In keeping with this best practice, SACE reduced the incentive level by about half for the majority of programs.

SACE also reduced program participation rates, allowing the programs to ramp up over several years (as opposed to immediately achieving high levels of savings) and achieving overall participation levels that better reflect market opportunities, generally below those in the Aggressive Portfolio. Georgia Power disagrees with SACE's participation estimates, as developed by Synapse Energy Economics and presented in SACE Exs. 23 and 29, because they "likely contained a degree of repeat participation." (Tr. 2356). However, Georgia Power did not

provide participation estimates, and its own program forecast data did not include assumptions regarding repeat participation. (Tr. 1378; *see also* SACE Ex. 29 at 2 ("Given the information provided by GPC, we could not clearly identify the exact number of participants in each program.")). Due to the lack of information, Synapse used reasonable assumptions to account for repeat participation and to develop participation estimates for the Enhanced DSM Portfolio.

Finally, SACE corrected errors in the Company's program economic data. Most significantly, the Company erred in its use of a uniform escalation rate for avoided costs and lost revenues and a single fuel cost recovery ("FCR") rate forecast in its DSM portfolio lost revenue calculations. The uniform escalation rate is not derived from the Company's usual system cost forecasts or its usual rate forecasts. As SACE witness Wilson testified, if Georgia Power had used its own detailed cost and revenue forecasts, all the RIM test scores would be lower, reflecting reduced rate impacts. (Tr. 1396). Moreover, the use of a FCR rate forecast is inconsistent with the results of Georgia Power's system planning tool, Strategist, which indicates that fuel and other production costs will be lower with higher levels of energy efficiency. (Tr. 1397; SACE Ex. 5).

The Company asserted that SACE's corrections are flawed in several respects. For example, Georgia Power alleged that SACE used a fixed escalation rate of 112%, but when asked about the basis of this allegation, the Company could not point to any such escalation rate assumption in Mr. Wilson's direct testimony or supporting exhibits. (Tr. 2280). Instead, the Company made only vague references to the assumption appearing in Mr. Wilson's workpapers, but could not provide any more specific support for its allegation during the hearings. (Tr. 2280-81). The Company's subsequent explanation of its allegation, as provided in its June 26, 2013 response to Hearing Request 3-4, is incorrect. The response cites to a *factor*, not an escalation

rate, which was derived from the Company's own planning tools. *See* SACE Ex. 11, Table 1. Moreover, this *factor* was used in both the numerator and denominator of the correction factors equation, and therefore had no impact on the resulting calculation. Mr. Wilson did not use a fixed escalation rate of 112%, and the Company's allegation against Mr. Wilson should be rejected for what it is – an attempt to obscure and distract from the Company's own errors and unreasonable assumptions, which caused incorrect cost-effectiveness test results and remain unexplained.

PIA Staff has proposed a revised DSM portfolio in which savings increase based on a 10% increase in participation from the Company's proposed case (with the exception of the CFL giveaway program) for the period 2014 to 2016. (Tr. 983). PIA Staff's proposal, which is adopted in the Proposed Stipulation, does not go nearly far enough and should be rejected in favor of the Enhanced DSM Portfolio. Like the Company's proposed plan, a 10% increase leaves a significant amount of cost-effective energy savings on the table and does not offer the additional programs the Company developed in its Aggressive Case, including the low income program. The Enhanced DSM Portfolio provides the largest cost savings opportunity for the Company and its customers. Accordingly, the Commission should direct the Company to finalize a revised DSM portfolio, including newly approved program filings, participation projections and DSM budgets for 2014 to 2016 in accordance with the Enhanced DSM Portfolio, which saves the equivalent of about [redacted] of retail sales per year, as presented in SACE Exhibit 20.

In addition to adopting the Enhanced DSM Portfolio, the Commission should direct Georgia Power to correct its methodological flaws in its DSM planning. Specifically, in future IRPs, the Company should calculate the avoided cost and lost revenue estimates based on the Company's own cost and revenue forecasts. Moreover, the Company should use more than one

FCR rate forecast for revenue forecasting purposes in the DSM planning tool to account for the impact of varying levels of energy efficiency on fuel and other production costs.

B. SACE's performance-based Additional Sum proposal encourages the successful delivery of energy efficiency and provides a fair allocation of the benefits between the Company and its customers.

In addition to program cost recovery, Georgia law provides for the recovery of an Additional Sum, as set by the Commission, to encourage utilities to develop demand-side resources, like efficiency. O.C.G.A. § 46-3A-9; Commission Rule 515-3-4-.11(3)(b). The Additional Sum is an essential component of Georgia Power's DSM portfolio. As SACE witness Mims testified, the additional sum provides "an incentive to ensure maximum performance from the utility's energy efficiency assets." (Tr. 1519-20). Georgia Power has proposed an Additional Sum, and both PIA Staff and SACE recommend alternative mechanisms. Despite the different proposals, all three parties support an Additional Sum incentive.

The Commission should adopt SACE's proposed Additional Sum. It is the only proposal that ties a financial incentive directly to performance tiers, thereby encouraging the successful, cost-effective delivery of energy efficiency. It is also the only proposal that does not allow the incentive to exceed program costs. SACE's proposal caps the total incentive level at a percentage of program costs to ensure that the benefits of efficiency are fairly allocated between the Company and its customers. Specifically, SACE recommends a performance-based structure in which the Company recovers between 8-28% of the net present value of program costs based on the amount of energy savings it achieves, as presented in SACE witness Mims' testimony and shown in Table 1. (Tr. 1521).

Table 1. SACE's Additional Sum Recommendation

Savings as a percent of prior year sales	Pre-tax return on NPV of Program Costs
<0.25%	8%
0.25 – 0.49%	12%
0.50 – 0.74%	16%
0.75 – 0.99%	20%
1.0 – 1.24%	24%
<1.25%	28%

Under SACE's proposal, the more energy Georgia Power saves through its DSM programs, the more it earns through its Additional Sum. Moreover, SACE's proposal brings Georgia in line with every state that allows for efficiency incentives by limiting it to less than 30% of total program costs. *See* SACE Ex. 25.

Unlike SACE's proposal, Georgia Power's and PIA Staff's proposed Additional Sum mechanisms, as presented in testimony and filings, are not linked to performance tiers. Their proposed Additional Sums, as presented in testimony, equal 10% and 7%, respectively, of the net present value of program benefits, using the Program Administrator Test. Once the Additional Sum reaches 100% of the cost of programs, the Company can then recover 5% (Company's proposal) or 3.5% (PIA Staff's proposal) of program benefits. The main difference between the two proposals (in addition to the different percentage amounts) is that the Company proposed using gross energy savings whereas PIA Staff recommended using net energy savings. Neither proposal links the Additional Sum amount to the amount of savings the Company achieves, and both allow recovery in excess of program costs.

The Additional Sum mechanism in the Proposed Stipulation does not fare much better. The proposal provides for an Additional Sum of 8.5% of the net present value of actual net program benefits of verified net energy savings, using the Program Administrator Test.

Proposed Stipulation at 5. However, 4% of net benefits are used for any portion of the additional sum that exceeds 100% of program costs, and if annual incremental savings are less than 50% of initial projections, the additional sum is 3% for energy efficiency and 0.5% for demand response measures. *Id.* Like the Company's and PIA Staff's initial proposals, this mechanism allows recovery in excess of program costs and is not performance based, other than a single reduction based on achieving less than half of the energy savings projections. Accordingly, it should be rejected.

The evidence demonstrates that the Additional Sum mechanism should link the incentive Georgia Power receives to energy savings goals. Indeed, one of the key findings of PIA Staff's review of performance incentive mechanisms across the country is that "[i]t is important to link utility incentives to utility achievements towards specified targets." (Tr. 1010; 1092). Moreover, PIA Staff witness Barber testified that PIA Staff is "considering or open to performance based tiers" in the additional sum and that this "was something that we had intended to add but never got in." (Tr. 1091, 1092). SACE's Additional Sum proposal provides this critical link to performance and fairly allocates the substantial benefits of efficiency between the Company and its customers. Therefore, SACE's performance-based Additional Sum proposal should be adopted.

VI. The Company should submit annual true up filings in support of its DSM tariff update to provide the Commission, Staff and stakeholders an opportunity to review program performance and spending.

As its DSM portfolio grows, it is critical that Georgia Power implement an annual true up process so that the Company, the Commission, Staff and stakeholders can compare the Company's initial estimates of important DSM metrics, including program costs, participation, and savings, to the actual numbers, as provided in the Company's EM&V reports. An open and

transparent true up process would also provide a forum in which to review the results and application of the Company's EM&V efforts, which form the basis of the true ups.

Currently, there is no Commission-approved true up mechanism for the DSM tariff, and no public process dedicated to reviewing the Company's proposed and actual program, spending, participation, savings, and application of EM&V for its energy efficiency programs. (Tr. 995, 1517). The Company has proposed a prospective participation true up for the Additional Sum calculation. In testimony, PIA Staff supported this proposal and also recommended an energy savings and program cost true up for the Additional Sum, and a tariff true up comparing revenues collected to DSM expenses. (Tr. 995; 1851).

At a general level, both PIA Staff and SACE have proposed annual true up processes and a more thorough review and application of the Company's EM&V. (Tr. 995-1001; 1515-18). Although the Company opposes a separate EM&V and/or true up proceeding, the Company testified that it "is willing to enter into discussions with Staff to address the true-up of actual energy savings and actual program costs" and "will work with Staff to develop the documentation necessary to support the DSM rider true-up process." (Tr. 2353; 2360). Additionally, PIA Staff represented that it is "willing to work with interested parties to try to arrange their participation in the DSM true up process." (Tr. at 1852). The Proposed Stipulation provides that the Company will update all participation, energy savings and program costs data when calculating the Additional Sum in future years; will true up DSM revenues and expenses on an annual basis; and will meet with Staff to finalize the calculation methodology for the true up. Proposed Stipulation at 5-6.

SACE supports an annual DSM tariff true up process, which would incorporate the Additional Sum true up based on participation, savings and programs costs, as well as a DSM

revenue/expense true up. To facilitate an annual true up of the DSM tariff, SACE recommends that the Commission order the Company to make an annual true up filing, along with its proposed DSM tariff update, 90 days before the effective date of the proposed DSM tariff. The annual true up filing should provide, at a minimum, the following information to support the true up and tariff update: the application of the EM&V impact and process reports to its programs; forecasted and actual program costs; forecasted and actual savings (energy and demand); and forecasted and actual participants by program. *See* SACE Ex. 24. In addition to PIA Staff, interested parties should have an opportunity to provide written comments on the true up and DSM update that can be reviewed by the Commission prior to setting the updated tariff. This structure would allow for a transparent true up process within the existing DSM tariff update process and support public participation in the DSM true up process. To facilitate the process, the Commission should direct the Company, PIA Staff and SACE to work together to develop and propose the specific filing requirements and calculation methodology for the DSM true up.

VII. The Company and PIA Staff should work together to develop program flexibility guidelines.

The Company has indicated that the program design and/or implementation plan for all programs may be modified for a variety of reasons during the three-year period between now and the next IRP. SACE supports flexibility in program design and delivery. Indeed, flexibility is one of the benefits of energy efficiency. However, such flexibility must be transparent. Although Commission Rule 515-3-4.10 addresses amended certification applications, further guidance is needed concerning program changes that do not require an amendment. (Tr. 1523).

During the rebuttal phase of the proceedings, the Company "reiterate[d] its commitment to notifying Staff and DSMWG members of any program changes that are made to DSM programs" and Mr. Legg testified that the Company would "make every effort" to provide notice

before changes are made. (Tr. at 2354-55; 2391). The Company also provided that it is "willing to have further discussions with Staff to create an approval process that facilitates program effectiveness and allows the Company the flexibility it needs to conduct successful programs." (Tr. at 2354-55). As Company witness Legg testified, this approval process could also address notice and filing requirements regarding program changes, and could clearly define criteria for changes that do not require a certificate amendment. (Tr. 2391).

SACE recommends that the Commission direct the Company to provide Commission Staff and the DSMWG with proposed changes to the DSM program plan prior to implementation of those changes. In addition, Staff, Georgia Power and SACE should work together to develop program change criteria to allow Georgia Power to be flexible and dynamic in its response to market and customer needs, determine which program changes require Staff approval in advance of implementation, and also require sufficient notice to the Commission and stakeholders. As stated in SACE witness Mims' testimony, the North Carolina flexibility guidelines for Duke Energy Carolinas (SACE Exhibit 26) are a good starting point for developing this program change criteria.

The Proposed Stipulation provides that the Company and Commission staff will work together to determine which program changes require Staff approval in advance of implementation. Proposed Stipulation at 6. This provision should only be adopted as modified by SACE's above recommendations.

VIII. The Company should prepare an energy efficiency potential study in advance of its 2016 IRP filing.

The Company followed the Nine Step DSM planning process, as approved in the final order on the 2010 IRP and DSM plan, to develop its Amended DSM plan. Step two of the process directs the Company to file a new energy efficiency potential study one year in advance

of the 2013 IRP filing. The Company has requested that the Commission eliminate the potential study requirement at the beginning of the next IRP cycle. (Tr. 494). The Commission should reject this request.

As Ms. Mims explained in her testimony, energy efficiency potential studies are critical to developing accurate efficiency inputs and integrating efficiency into long term resource planning. (Tr. 1525). Witnesses for PIA Staff explained that the potential study serves as "the critical foundation of the Company's demand-side plan." (Tr. 1001). The studies evaluate where the largest opportunities exist across a utility's entire efficiency portfolio and it is important that they be updated regularly. The Company used its 2012 potential study to inform the DSM portfolios it put forward in this IRP, and it should continue to conduct these studies in advance of its IRP and DSM plan filings. PIA Staff agrees, and its witnesses testified that the Commission should require the Company to prepare an energy efficiency potential study as part of the development of the Company's next IRP filing in 2016. (Tr. 1001). Additionally, the Proposed Stipulation appears to support a new potential study one year in advance of the 2016 IRP filing, in addition to all other aspects of the nine step process and DSMWG. Based on the evidence presented, the Commission should direct Georgia Power to file a new energy efficiency potential study one year in advance of the 2016 IRP filing.

IX. The Company should improve its IRP planning methods and analysis.

A. The Company Should Make Several Changes to its Unit Retirement Study Methodology.

The Company's Unit Retirement Study relies on simplistic and unreasonable assumptions that tend to bias the results in favor of continued coal-fired operation. That SACE and PIA Staff ultimately agree with and support the Company's decertification requests should not obscure these flaws. In future IRPs, the Company will again need to perform unit retirement analyses in

the face of a variety of changing risks. In order to meet the basic purpose of the IRP process, which is to meet future electricity demand in an economic and reliable manner, it is critical that the analytical flaws identified by both SACE and PIA Staff be addressed. Therefore, SACE asks that the Commission direct the Company to consider the following recommended improvements to the unit retirement analysis.

1. The Company should modify its natural gas and CO_2 price assumptions.

SACE witness Evans found multiple flaws in the Company's Unit Retirement Study that biased the results in favor of continued operation of existing coal-fired power plants. Two of the flaws concern price forecasts for natural gas and CO_2, which the Company used to develop future scenarios against which it compared the costs and benefits of continued operation versus retirement. For natural gas, Mr. Evans found that the Company's forecasts were biased high, which tends to reduce the economic competitiveness of replacement units fired by natural gas. (Tr. 1411). Mr. Evans found the forecasts unreasonable in light of recent natural gas prices and the success of fracking techniques to extract natural gas, which has sharply increased supply. (Tr. 1411-12). Mr. Evans testified that the Company's high gas forecast should be rejected, that its proposed low forecast should be used as its moderate forecast, and that the Company should develop another lower forecast to be used as its low forecast. (Tr. 1412).

PIA Staff witnesses Falkenberg and Hayet reached similar conclusions. They deemed the Company's high forecast "an outlier" and eliminated it from consideration. They then used the Company's moderate forecast as Staff's High forecast, used the Company's low forecast as Staff's Moderate forecast, and developed their own new Low gas forecast. (Tr. 820). PIA Staff

has reached similar conclusions in prior dockets, as has SACE.[12] (Tr. 819-20). PIA Staff and SACE continue to be in agreement that the Company's natural gas projections are inflated in light of recent market trends.

The Company's CO_2 price forecasts present the opposite problem: they are biased low. (Tr. 1411). This flaw produces the same result as gas prices that are biased high – it improves the competitiveness of existing coal-fired units. (*Id.*). The Company uses three CO_2 price forecasts: existing, moderate and substantial. (Georgia Power Ex. 1, Unit Retirement Study at 5). The existing forecast assumes a zero CO_2 price in all future years. (*Id.*). But the Company fails to balance this low forecast with one that is appropriately high. (Tr. 1412). The Company utilizes a $20 per metric ton carbon price as its high forecast, while other utilities have projected upwards of $40 to $50 per metric ton. (*Id.*). Without a more aggressive high forecast, the Company is failing to consider the full potential range of CO_2 prices. (*Id.*) The result is an analysis that undervalues carbon price risk in the planning process.

2. The Company should consider a range of environmental compliance costs.

Another flaw identified by SACE witness Evans is the Company's failure to consider the cost of environmental upgrades in its Unit Retirement Analysis. (Tr. 1412). These costs are substantial; in several cases they exceed a [redacted]. (*Id.*; SACE Ex. 12 at 10). Yet the Company cannot know with certainty what the costs to perform these upgrades will end up being. They could exceed the Company's projections, making retirement the more cost-effective option for ratepayers. Moreover, some of the environmental regulations considered by the Company have yet to be issued in final form, and so the costs of compliance cannot yet be

[12] *See* Direct Testimony of David A. Schlissel on behalf of SACE, Commission Docket No. 34218 (Nov. 21, 2011).

estimated with precision. Accordingly, going forward the Company should perform an analysis similar to the one it performs regarding natural gas and CO_2 prices: it should evaluate a base, low and high estimate of the costs of environmental upgrades at each generating plant. This will enable the Company to appropriately consider the risk of cost increases for planned environmental upgrades. (Tr. at 1412-13).

3. The Company should use Strategist to select the best replacement units for existing capacity and estimate future operating costs of existing and replacements generating units.

Finally, the Company made simplistic and unsupported assumptions regarding the types replacement units considered for retirement and future operating costs. (Tr. 1411). The Company could correct both of these flaws by utilizing for its retirement study the same tool it uses to make future resource selections – Strategist.

The Company assumed that, for the most part, existing coal units would be replaced by new CC generating units and that existing oil units would be replaced by new CT (peaking) generating units. (*See generally* Georgia Power Ex. 1, IRP Technical Appendix, Vol. 2 Unit Retirement Study).

These assumptions are problematic because many factors influence selection of the best replacement option for a given unit, including but not limited to the existing generation mix at the time of replacement, the level of installed energy efficiency measures, and the relative costs of alternative fuels and technologies. (Tr. 1413). For any group of units being considered for retirement, it is likely that the best replacement units are some mix of generating types, rather than one particular type of generation. (*Id.*). Therefore, it was unreasonable for the Company to make a fixed assumption about the type of generating units that would best replace existing units. (*Id.*).

Additionally, the Company's assumptions regarding future operating costs do not match the realities of system operation. The Company developed hourly system marginal costs using the PROSYM model. The Company then forecasted the operating levels of each unit and its replacement using these static hourly system marginal costs. However, this does not reflect the way that generating units are actually operated. In reality, in a given week or on any given day, the Company selects the best mix of generating units to operate so that the system can meet customer load and required reserves. (Tr. 1414). There is no known *hourly* system marginal cost against which units are measured for operation. (Tr. 1414-15). In selecting the right generation mix, the Company must account for many other features of its generating units, including minimum operating levels, ramping ability, minimum required operating hours, ability to respond quickly to customer demands, etc. (Tr. 1415).

The Company should correct these flaws by utilizing Strategist. Using Strategist would result in selection of the best replacement units for the units being studied for retirement and would improve the estimates of future operation by providing a better approximation of the Company's actual operation. Moreover, Strategist could address the Company's failure to use consistent tools and assumptions for its Resource Mix and Unit Retirement studies, as explained by PIA Staff witnesses John W. Chiles, et al. (Tr. 694-96). As Chiles testified, the Company "should demonstrate, using one modeling tool, that all of the recommendations made regarding resource retirements and resource additions result in the selection of the plan that is most economically feasible to ratepayers." (Tr. at 701). Staff suggested that Strategist could be used for this purpose. (Tr. at 702). For its part, the Company has acknowledged that "it is optimal to utilize the same assumptions across all models" (Tr. 1966), but it has not committed to doing so in the future.

The use of appropriate assumptions in the Company's retirement analysis is particularly important in this IRP, where the Company is proposing a large number of retirements. But it will be important to correct these flaws in future IRPs as well. This is not the last IRP in which retirement of existing generation units will be considered, nor will it be the last to consider the impact of all manner of risks – from fuel costs to carbon prices to overall regulatory uncertainty – on the resource planning process. (Tr. 2254). In every IRP, the Commission is obligated to determine whether "[t]he utility's forecast requirements are based on substantially accurate data and an adequate method of forecasting," among other determinations. O.C.G.A. § 46-3A-2(b)(1). The Company should use consistent and reasonable assumptions in future IRPs so that its resulting plan "adequately demonstrates the economic, environmental, and other benefits to the state and to customers of the utility." *Id.* at (b)(3).

The Proposed Stipulation provides that the Company and Staff will begin to work collaboratively to address any retirement study modeling and transmission planning issues in an effort to resolve any such issues before the 2016 IRP filing. (Proposed Stipulation at 6). SACE agrees that all modeling and planning issues should be addressed in preparation for the next IRP and recommends that the Commission direct the Company and PIA Staff to consider SACE's (in addition to PIA Staff's) recommended improvements to the unit retirement analysis.

B. The Company should perform an updated analysis of the viability of continued operations of Plant McIntosh.

The Company's analysis only tenuously supports the proposed conversion of McIntosh Unit 1 to Powder River Basin ("PRB") coal. In two of the nine scenarios – reflecting a probable future of low natural gas and moderate to high CO_2 prices – the results of the Company's analysis actually favor replacement with new generation. (Tr. 1420). In three other scenarios, the dollar amounts favoring continued operation are not substantial. (*Id.*).

As described in the Company's filing, the proposed conversion is expressly conditioned on the results of a test burn and subsequent feasibility study. Georgia Power Ex. 1, IRP Main Document at 79. At the rebuttal hearing, witnesses for the Company reported that the test burn had been successfully completed. (Tr. at 2260). However, the Company also reported changed economic assumptions, including that the costs of achieving MATS compliance through the use of activated carbon injection ("ACI") and dry sorbent injection ("DSI") would be more expensive than originally contemplated. (Tr. at 1975). This is precisely the sort of problem that SACE witness Evans envisioned when he faulted the Company's retirement analysis for not considering a range of costs for environmental upgrades. (*See infra* Section IX.A; *see also* Tr. at 1411). The Company has agreed to furnish the updated economics and has clarified that there is and will be no separate feasibility study; all of the Company's analysis related to the test burn and changed assumptions regarding the costs of MATS compliance will be reflected in the updated economics to be filed with the Commission. (Tr. 2057; 2293-94).

Other potentially significant costs remain unknown and should be determined with more precision before any final decision regarding McIntosh Unit 1 is made. It appears that the Company has yet to enter contracts to secure and deliver PRB coal to the facility and for the necessary plant modifications that will allow PRB coal to be safely stored and burned. (Tr. at 2262; 1420). Changes to the Company's assumed costs in any of these areas could tilt the balance in favor of retirement.

The proposed conversion is already a close call under the Company's overly simplistic retirement analysis. Before making a final decision, the Commission should review the Company's updated economic assumptions and should insist that they include negotiated contract terms and costs for coal, coal transportation and required plant modifications. If the

updated economics do not clearly favor the conversion, the Company should instead seek decertification of McIntosh Unit 1.

C. The Company should incorporate risk analysis in its IRP.

The Company failed to evaluate all of the risks associated with its IRP and consider whether alternative resource investments might mitigate those risks. For example, as discussed above, the Company considered only a single estimate of environmental compliance costs in its unit retirement study. This is one example of construction cost risk, as discussed in the testimony of SACE witness John Wilson. (Tr. 1730). While the Company's IRP evaluates some types of risks, such as inaccurate load forecasts, others, such as water constraint risk, are omitted. (Tr. 1731).

Additionally, the role of energy efficiency and renewable energy resources in mitigating system risks is not discussed in the IRP. (*Id.*). A more comprehensive approach to the evaluation and management of risks affecting the Company and its customers is warranted. In future IRPs, the Commission should direct the Company to expand its evaluation to include the major types of risk its system faces, and to identify the resources that are most effective at mitigating or managing those risks.

D. The Company should make its IRP models and supporting documentation available to Intervenors in addition to Staff.

The Proposed Stipulation provides that "[w]hen filing the 2016 IRP or when filing any updates to the IRP prior to the 2016 IRP filing the Company agrees to provide to Commission Staff working copies of all models used in the development of that IRP, with each configured to replicate inputs used to derive results incorporated in its base case scenario within 10 days after the IRP or update to the IRP is filed." Proposed Stipulation at 4. Access to the IRP models and supporting documentation is critical to understanding the Company's IRP analysis and

conclusions. Therefore, this provision (if approved) should be modified so that Intervenors, and not just Commission Staff, can access this important information. Specifically, SACE recommends that the Commission direct the Company to provide requesting Intervenors who have executed confidentiality agreements (if necessary) with working copies of all models used in the development of the future IRPs as well as supporting documentation or workpapers necessary to understand the models and assumptions used in the models.

CONCLUSION

Based on the evidence in the record, and for the reasons discussed herein, SACE respectfully requests the Commission take the following action in this case:

1. Approve the Company's decertification requests.

2. Reject the proposed conversion of Plant Gaston Units 1-4 and decertify those units, or the Company's purchase of power from the units.

3. Direct the Company to expand its commitment to solar power in the short term by increasing solar in the ASI, or under the construct of ASI, by 500-600 MW, including both distributed generation and utility-scale solar projects.

4. Establish a "value of solar" proceeding within the Company's existing avoided cost docket, by the end of 2014, to determine the full and fair value of solar resources, and require Georgia Power to file a solar valuation study in the docket that is specific to its service territory and incorporates the full range of costs avoided by solar generation.

5. Direct the Company to improve its resource evaluation and modeling of solar, wind and other renewable technologies for future IRPs.

6. Direct the Company to finalize a revised DSM portfolio, including program filings, participation projections and DSM budgets for 2014 to 2016, in accordance with the Enhanced DSM Portfolio, as presented in SACE Exhibit 20.

7. Adopt SACE's proposed performance-based Additional Sum.

8. Direct Georgia Power to calculate its avoided cost and lost revenue estimates based its own cost and revenue forecasts (rather than using a uniform escalation rate) and to

use more than one FCR rate forecast for revenue forecasting purposes in the DSM planning tool in future IRPs.

9. Require the Company to submit an annual energy efficiency true up filings, in support of its DSM tariff update, 90 days before the proposed effective date of the DSM tariff update, and direct the Company, PIA Staff and SACE to work together to develop specific filing requirements and calculation methodologies for true up process.

10. Direct the Company to provide Commission Staff and the Demand Side Management Working Group ("DSMWG") with proposed changes to the DSM program plan prior to the implementation of those changes. The Company, Commission Staff and SACE should work together to determine which program changes require Staff approval in advance of implementation.

11. Direct the Company to prepare an energy efficiency potential study for filing one year in advance of the 2016 IRP.

12. Direct the Company to consider SACE's and PIA Staff's recommended changes to its Unit Retirement Study methodology.

13. Review the Company's updated economic assumptions, including negotiated contract terms and costs for coal, coal transportation and required plant modifications, prior to deciding whether to approve the coal switch at Plant McIntosh Unit 1.

14. Direct the Company to expand its IRP analysis to address the major types of risk its system faces, and to identify the resources that are most effective at mitigating and/or managing those risks.

15. Direct the Company to provide Intervenors, and not just PIA Staff, with working copies of all models used in the development of the future IRPs, as well as supporting documentation or workpapers necessary to understand the model and assumptions used therein, upon Intervenor request and execution of confidentiality agreements, as needed.

Respectfully submitted this 28th day of June 2013.

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