Alabama Power

600 North 18th Street
Post Office Box 2641
Birmingham, Alabama 35291

February 14, 2025

BY ELECTRONIC FILING

Alabama Public Service Commission
RSA Union Building
100 North Union Street, Suite 950
Montgomery, Alabama 36104

Attention: Mr. Walter L. Thomas, Jr.
Secretary

Subject: Rate CPE (Contract for Purchased Energy)
Docket No. U-5213

Dear Mr. Thomas:

In accordance with Alabama Code § 37-1-81, and as required by the Commission's Order in this docket dated March 7, 2017, Alabama Power Company is filing proposed updates to Rate CPE (Contract for Purchased Energy). As with prior revisions to the rate, the energy payments reflect updated cost information and avoided cost data for Alabama Power Company. As compared to the currently effective payments, avoided energy pricing for the upcoming cost year reflects an increase of approximately seven (7) percent (averaged across the various time periods).

In addition, the Company is proposing updates to the Attachment A standard contract, which applies to any qualifying facility ("QF") that wishes to sell its total output to the Company (less any production consumed on site for station service or similar reasons). As compared to prior year modifications, the revisions to the body of the contract are clarifying in nature, with two exceptions.

First, the Company has determined to remove the variable integration cost recovery component in Appendix A. The decision to do so stems from the results of an updated Southern system study (included with this filing) and updated assumptions reflecting the penetration rate of variable resources. As system conditions change and the underlying study is updated, Alabama Power will revisit the need to restore the variable integration cost recovery component in Appendix A. Alabama Power would also note that no Attachment A QF projects had the variable integration cost recovery component applied during the 2024-2025 Rate CPE cost year (as all such projects remain in development).

Second, the Company is proposing a capacity addendum to the Attachment A standard contract. In short, the capacity addendum provides for the terms, conditions and corresponding calculations applicable to QF projects that include a battery energy storage system ("BESS"), and wish to receive payment both for energy output as well as capacity.

A summary table of the updated pricing is attached, along with (i) clean and redlined versions of Rate CPE and the Attachment A standard contract; (ii) the aforementioned integration cost study; and (iii) the new capacity addendum.

The proposed changes to Rate CPE and the Attachment A standard contract have been reviewed with Commission Staff, and the Company understands Staff to be supportive of the updates. Accordingly, Alabama Power respectfully requests the Commission approve the proposed revisions to Rate CPE at its regularly scheduled March 2025 meeting, effective for billings beginning April 1, 2025.

Consistent with the Commission's rules on electronic filing, one physical copy of this filing is being supplied directly to the Commission, along with a confirmation copy to be stamped as filed for return to the Company.

If you have any questions or need anything further, please contact me.

Yours very truly,

/s/ Christine M. Baker

Christine M. Baker

Attachment

Rates for Purchase of Energy from a Qualifying Facility

	>= 115 kV	44 kV or 46 kV	<= 34.5 kV
	¢/kWh	¢/kWh	¢/kWh
April 1– October 31 1:00 p.m. – 5:00 p.m.	3.941	4.048	4.142
April 1 – October 31 All Other Hours	3.210	3.297	3.373
November 1 – March 31 6:00 a.m. – 9:00 a.m.	4.168	4.281	4.380
November 1 – March 31 All Other Hours	3.403	3.495	3.576

Rate CPE

Contract for Purchased Energy

Clean and Redlined

RATE CPE
CONTRACT FOR PURCHASED ENERGY

Alabama Power

By order of the Alabama Public Service Commission dated ____ __, ____ in Docket #U-5213

AVAILABILITY

Available to any Qualifying Facility that seeks to sell its total output, or a portion thereof, to Alabama Power Company in accordance with the Public Utility Regulatory Policies Act of 1978, as amended and Title 18, Part 292 of the Code of Federal Regulations.

APPLICABILITY

The terms and conditions of this rate apply to a certified Qualifying Facility that has a nameplate capacity greater than 100 kW AC and that meets the eligibility requirements of Title 18, Part 292 of the Code of Federal Regulations.

Attachment A – Contract for the Purchase of Energy from a Qualifying Facility shall be used for any Qualifying Facility (cogeneration facility or small power production facility) that seeks to sell its total output to Alabama Power Company (less any production consumed on site for station service or similar reasons), as provided herein and in the contract.

Attachment B – Contract for the Purchase of Excess Energy shall be used for any customer of Alabama Power Company that operates a Qualifying Facility (cogeneration or small power production facility) to serve a portion of its retail electric needs, with excess output sold to the Company on an intermittent basis, as provided herein and in the contract.

GENERAL REQUIREMENTS

Delivery and Interconnection

A Qualifying Facility that seeks to make sales to Alabama Power Company under this rate shall be responsible for all costs of interconnection and the delivery of the energy from the Qualifying Facility to Alabama Power Company and the Alabama Power Company electrical system, including any costs related to or incurred as a result of the transmission of energy across the Alabama Power Company electrical system or other electrical systems.

Any Qualifying Facility that seeks to physically interconnect to Alabama Power Company's electrical system in accordance with Rate CPE and either of the Standard Contracts offered through this rate must apply for interconnection and complete and execute a generation interconnection agreement prior to the project delivering energy to the Company. Each such Qualifying Facility shall be responsible for all costs associated with any corresponding facilities, improvements and upgrades needed for interconnection of the Qualifying Facility or for delivery of energy to the load of Alabama Power Company.

For more information regarding the process for interconnecting a generator in accordance with Rate CPE, including a contact for obtaining the interconnection application and agreement, visit

RATE CPE
CONTRACT FOR PURCHASED ENERGY

Alabama Power

By order of the Alabama Public Service Commission dated ____ __, ____ in Docket #U-5213

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www.alabamapower.com/business/rates-and-pricing/about-our-pricing.html, and select Other Pricing Options Index, or Click to email. In addition to the costs described in the preceding paragraph, the Qualifying Facility is responsible for payment of all fees and costs associated with applications, required studies, administration of the interconnection agreement and financial security requirements.

Rate for Purchase of Energy from a Qualifying Facility

Period	Transmission Voltage >=115kV	Subtransmission Voltage 44kV or 46kV	Primary Distribution Voltage <=34.5kV
	¢/kWh	¢/kWh	¢/kWh
April 1– October 31 1:00 p.m. – 5:00 p.m.[1, 3]	3.941	4.048	4.142
April 1 – October 31 All Other Hours[2,3]	3.210	3.297	3.373
November 1 – March 31 6:00 a.m. – 9:00 a.m.[1,3]	4.168	4.281	4.380
November 1 – March 31 All Other Hours[2,3]	3.403	3.495	3.576

[1] Weekdays only and excluding holidays

[2] Includes all hours of weekends and holidays

[3] Holidays include New Year's Day (January 1), Independence Day (July 4), Labor Day (first Monday of September), Thanksgiving Day (fourth Thursday of November), and Christmas Day (December 25). When any of these holidays fall on a Sunday, the Monday following also shall be treated as a holiday.

The prices above reflect Alabama Power Company's expected avoided costs for energy delivered by the Qualifying Facility to the system during defined hourly periods for standard system operations. These prices shall be updated no less frequently than annually.

RATE CPE
CONTRACT FOR PURCHASED ENERGY

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STANDARD CONTRACT REVIEW AND APPROVAL

Any contract executed by Alabama Power Company in accordance with this Rate is subject to review by the Staff of the Alabama Public Service Commission to ensure conformity with the terms and conditions set forth in the Standard Contracts, as applicable. Separate approval of such a contract is not required where the contract does not deviate in any material respect from the Standard Contracts.

LEGALLY ENFORCEABLE OBLIGATION

As a prerequisite to obtaining a legally enforceable obligation under this Rate, any Qualifying Facility shall provide or otherwise demonstrate to Alabama Power Company the following criteria.

1. Submission of an interconnection application and deposit for study fees, if any.
2. A Form W-9.
3. Submission of a Qualifying Facility self-certification to the Federal Energy Regulatory Commission that has not been revoked, or written demonstration (i) that certification is not required, or (ii) the Qualifying Facility meets the eligibility requirements of Title 18, Part 292 of the Code of Federal Regulations.
4. A non-binding and good-faith estimated construction plan and timeline (including construction cost quotes) and projected capacity and/or energy output of the Qualifying Facility, by month and year.
5. The taking of meaningful steps to obtain site control for the Qualifying Facility.
6. Application for material and time-sensitive federal, state, and local permits and licenses necessary to construct and operate the Qualifying Facility.
7. Completion of all environmental and other studies necessary to support permit and license application.
8. Proof of financing for the Qualifying Facility, or a demonstration that the Qualifying Facility has applied for financing or has a reasonable plan for financing.

For more information regarding these criteria and how to provide the required information, visit www.alabamapower.com/business/rates-and-pricing/about-our-pricing.html, and reference the Other Pricing Options Index section.

ELECTRIC SERVICE TO QUALIFYING FACILITY

As applicable, any Qualifying Facility requiring Electric Service from Alabama Power Company must obtain such service in accordance with applicable rates, rules and regulations on file with the Alabama Public Service Commission, including the Rules and Regulations for Electric Service. Supplementary, Back-up, and Maintenance Power shall be provided as required under provisions of Rate Rider RGB, as applicable.

RATE CPE
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April 1– October 31 1:00 p.m. – 5:00 p.m.[1, 3]	~~3.653~~3.941	~~3.770~~4.048	~~3.851~~4.142
April 1 – October 31 All Other Hours[2,3]	~~2.984~~3.210	~~3.080~~3.297	~~3.146~~3.373
November 1 – March 31 6:00 a.m. – 9:00 a.m.[1,3]	~~3.807~~4.168	~~3.929~~4.281	~~4.013~~4.380
November 1 – March 31 All Other Hours[2,3]	~~3.202~~3.403	~~3.305~~3.495	~~3.375~~3.576

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Rate CPE

Attachment A
Standard Contract

Clean and Redlined

RATE CPE (CONTRACT FOR PURCHASED ENERGY) -- ATTACHMENT A

CONTRACT FOR THE PURCHASE OF ENERGY FROM A QUALIFYING FACILITY

BETWEEN

_____

AND

ALABAMA POWER COMPANY

Dated as of _____

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CONTRACT FOR THE PURCHASE OF ENERGY
FROM A QUALIFYING FACILITY

This Contract for the Purchase of Energy from a Qualifying Facility ("Agreement") is made and entered into as of the _____ day of _____, 20___ ("Effective Date") in accordance with Rate CPE (as defined herein), by and between **ALABAMA POWER COMPANY**, a corporation organized and existing under the laws of the State of Alabama ("Alabama Power"), and _____, a _____ organized and existing under the laws of the State of _____ ("QF").

WITNESSETH:

WHEREAS, [QF intends to construct, own, operate and maintain a _____ facility for the generation of electric power in _____ County, Alabama] [OR] [QF presently owns and operates a _____ facility for the generation of electric power in _____ County, Alabama];

WHEREAS, QF will certify, or has certified, and will operate such facility as a Qualifying Facility and, pursuant to the provisions of PURPA, QF desires to sell all of the electric energy produced by such facility to Alabama Power; and

WHEREAS, the Parties desire to set forth the terms and conditions upon which such sale of electric energy shall be conducted between the Parties.

NOW, **THEREFORE**, in consideration of the premises and of the mutual covenants set forth herein and other good and valuable consideration, the receipt, sufficiency and adequacy of which are hereby acknowledged, Alabama Power and QF, each intending to be legally bound, hereby agree as follows:

ARTICLE 1

DEFINITIONS AND INTERPRETATION

1.1 Definitions. All capitalized terms used herein and not otherwise defined, whether singular or plural, shall have the respective meanings set forth below.

"**AC**" means alternating current.
"**Adjustment Period**" has the meaning set forth in Section 5.4.
"**Affiliate**" means, for any specific Person, any other Person directly or indirectly controlling or controlled by or under direct or indirect common control with such specified Person. For purposes of this definition, "control" when used with respect to any Person means the power to direct the management and policies of such Person, directly or indirectly, whether through the ownership of voting securities, by contract or otherwise; and the terms "controlling" and "controlled" have meanings correlative to the foregoing.
"**Agreement**" has the meaning set forth in the first paragraph hereof.
"**Alabama Power**" has the meaning set forth in the first paragraph of this Agreement, and its permitted successors and assigns.

"**Annual Period**" means each period during which a given revision to Rate CPE is effective, each of which shall commence upon the first Day of the Month for which a given revised Rate CPE is made effective by the APSC and end on the last Day of the Month for which such revised Rate CPE is effective.
"**APSC**" means the Alabama Public Service Commission, its staff, or any Governmental Authority succeeding to the powers and functions thereof.
"**Business Day**" means any Day excluding Saturday and Sunday and excluding any Day on which banking institutions in Birmingham, Alabama are closed because of a federal holiday.
"**Central Prevailing Time**" or "**CPT**" means the local time at any point in Birmingham, Alabama.
"**Commercial Operation**" has the meaning set forth in the Interconnection Agreement.
"**Confidential Information**" has the meaning set forth in Section 13.1.
"**Collateral Assignee**" means third party lenders or other Persons (including cash equity and tax equity providers) providing construction financing, long-term financing, refinancing or other credit or financial support in connection with the development, construction or operation of the Facility.
"**Consents**" means all approvals, consents, permits, licenses, decrees, orders, judgments, certificates, zoning and other variances, waivers, exceptions, exemptions, franchises, rulings, authorizations or similar orders from, or filings or registrations with or notices to, any Governmental Authority that are required to own, develop, site, construct, operate, use, test, modify, and/or maintain the Facility and the Site, and for QF to perform its obligations under this Agreement.
"**Day**" means a calendar day.
"**Delivered Energy**" means, for any Hour, the amount of energy (expressed in kWh or MWh) that is produced by the Facility and delivered by QF to Alabama Power at the Interconnection Point pursuant to this Agreement; provided that Delivered Energy shall not include: (i) Electrical Losses; and (ii) energy that Alabama Power is not required to receive or purchase under Sections 6.1.2, 6.1.3 and 6.1.4.
"**Effective Date**" has the meaning set forth in the first paragraph of this Agreement.
"**Electric System**" means, collectively, the entire network of electric generating, transmission and distribution facilities, equipment and other devices owned (in whole or in part) or controlled by Alabama Power or its Affiliates, or to which Alabama Power or its Affiliates has the right to use, for the purposes of generating, transmitting, distributing, and receiving electric energy.
"**Electrical Losses**" means all electrical losses associated with the delivery of energy produced by the Facility to the Interconnection Point, including all electrical losses over distribution and transmission facilities prior to the Interconnection Point and those related to transformation prior to the Interconnection Point.
"**Electrical Products**" means any products produced by or related to the Facility, other than the electrical energy produced by the Facility, including electric capacity, spinning reserves, operating reserves, balancing energy, regulation service, reactive power and voltage control and other ancillary service products.
"**Environmental Attributes**" means, whether existing as of the Effective Date or in the future, any fuel-related, emissions-related, air quality-related or other environmental-related aspects, claims, characteristics, benefits, credits, reductions, offsets, savings,

allowances, efficiencies, certificates, tags, attributes or similar products or rights (including all of those relating to greenhouse gases and all green certificates, green tags, renewable certificates and renewable energy credits) ("Attributes"), howsoever entitled, whether known or unknown, whether or not such Attributes have been certified or verified under any renewable energy standards or criteria or otherwise, and whether or not such Attributes could qualify or do qualify for application toward compliance with any public, private, local, state, federal and/or international renewable energy related standard, program, law, policy, or contract, that: (i) arise or result from the generation of electric, thermal or other energy by the Facility; (ii) are associated with fuel that is used to produce electric, thermal or other energy at the Facility (including any fuel that may serve a dual purpose of contributing both to energy production and another industrial process), including the procurement, collection or aggregation of such fuel; (iv) arise or result from the avoidance or reduction of the emission of any gas, chemical or other substance to the air, soil or water that is attributable to the generation of electric, thermal or other energy by the Facility or the use of a particular fuel by the Facility to generate electric, thermal or other energy; (vi) arise or result from the recycling, recovery or reuse of any wastes, products, co-products, byproducts or similar materials associated with the generation of electric, thermal or other energy by the Facility; or (vii) arise or result from the avoidance of water use that is associated with the generation of electric, thermal or other energy at the Facility. Environmental Attributes shall not include any tax credit (including federal investment tax credits) derived from the construction or ownership of the Facility.

"**Event of Default**" has the meaning set forth in Section 10.1 for QF and Section 10.2 for Alabama Power.

"**Facility**" means the [insert applicable technology] electric generation facility and all related equipment and structures associated with such generation facility [to be or being constructed by QF] [OR] [presently owned and operated by QF] in [City], [State], with a nameplate generating output equal to ___ kW. The Facility shall include all equipment and facilities installed at the Site on QF's side of the Point of Change in Ownership that are necessary or used for the production, control, delivery or monitoring of electric energy.

"**FERC**" means the Federal Energy Regulatory Commission or any Governmental Authority succeeding to the powers and functions thereof.

"**Force Majeure Event**" has the meaning set forth in Section 12.1.

"**Governmental Authority**" means any local, state, regional or federal administrative, legal, judicial or executive agency, court, commission, department or other such entity.

"**Hour**" means one (1) of the twenty-four (24) clock-hours of a Day.

"**Initial Delivery Criteria**" means the fulfillment of all of the following criteria to Alabama Power's reasonable satisfaction:

(i) the Facility has been interconnected to the Electric System pursuant to the Interconnection Agreement, the Interconnection Agreement is in full force and effect, and QF and the Facility are in compliance with the Interconnection Agreement; and

(ii) QF shall have demonstrated that it has obtained all authorizations necessary to deliver energy from the Facility under this Agreement to the Electric System.

"**Initial Delivery Date**" means the later of: (i) _____ [Note: insert a date agreed to by Alabama Power and QF]; (ii) the Day on which the Facility achieves Commercial Operation; or (iii) the Day on which all Initial Delivery Criteria are satisfied.
"**Initial Period**" means the period of time from the Initial Delivery Date through the next occurring date on which a revision to Rate CPE is made effective by the APSC.
"**Interconnection Agreement**" means an agreement by and between QF and the Interconnection Provider providing QF the right to interconnect the Facility to the Electric System and containing terms and conditions governing the interconnection and parallel operation of the Facility with such system.
"**Interconnection Facilities and Upgrades**" means those facilities, equipment and upgrades (including any and all transmission system network upgrades) that are located on Interconnection Provider's side of the Point of Change in Ownership and that are required in order to interconnect the Facility at the Interconnection Point, which would not have been required but for the interconnection of the Facility to the Electric System (including all breakers and metering equipment needed for interconnection), as such facilities, equipment and upgrades are set forth and identified in the Interconnection Agreement.
"**Interconnection Point**" means the physical point at which the Facility is interconnected to the Electric System, as defined in the Interconnection Agreement.
"**Interconnection Provider**" means Alabama Power or other entity providing interconnection service for the Facility pursuant to the Interconnection Agreement.
"**Interest Rate**" means the prime rate of interest as published from time to time in the *Wall Street Journal* or comparable successor publication.
"**kW**" means kilowatts, AC.
"**kWh**" means kilowatt hours, AC.
"**Legal Requirement**" means any act; statute; law; requirement; ordinance; order; ruling or rule; regulation; standards and/or criteria contained in any permit, license or other approval; legislative or administrative action; or a decree, judgment or order of any Governmental Authority imposed, whether in effect as of the Effective Date or at any time in the future.
"**Month**" means a calendar Month, commencing at the beginning of the first Day of such calendar Month.
"**Monthly**" has a meaning correlative to that of Month.
"**Monthly Administration Charge**" means, for a particular Month of the Term, the Monthly amount required to be paid by QF to Alabama Power, pursuant to **Appendix C**.
"**Monthly Statement**" has the meaning set forth in Section 8.1.1.
"**MW**" means megawatts, AC.
"**MWh**" means megawatt hours, AC.
"**NERC**" means the North American Electric Reliability Corporation, including any successor thereto and subdivisions thereof.
"**Party**" **or** "**Parties**" means either Alabama Power or QF or both.
"**Person**" means any person, corporation, limited liability company, general partnership, limited partnership, proprietorship, other business organization, trust, union, association or Governmental Authority.
"**Point of Change in Ownership**" means the point where the facilities to be owned by QF will connect to the facilities to be owned by Interconnection Provider.

"**Prudent Industry Practices**" means, at a particular time, any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry prior to such time, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired results at the lowest cost consistent with good and acceptable engineering and business practices, reliability, safety and expedition. Prudent Industry Practices is not intended to be limited to the optimum practice, method or act to the exclusion of all others, but rather to be a spectrum of possible practices, methods or acts expected to accomplish the desired results, having due regard for, among other things, manufacturers' warranties, any applicable inspection authorities, and the requirements of Governmental Authorities of competent jurisdiction and the requirements of this Agreement.

"**PURPA**" means the Public Utility Regulatory Policies Act of 1978, including the implementing regulations of FERC and implementing regulations, practices or procedures of the APSC, as each may be amended or modified from time to time.

"**QF**" has the meaning set forth in the first paragraph of this Agreement, and its permitted successors and assigns.

"**Qualifying Facility**" has the meaning set forth in Section 292.101(b)(1) of the regulations promulgated under PURPA, 18 C.F.R. Part 292 (including any successor(s) provisions).

"**Rate CPE**" means "Rate CPE – Contract for Purchased Energy" or any successor in function applicable to the rates to be paid for energy delivered to Alabama Power by Qualifying Facilities of a size and kind more fully described in Rate CPE, as filed by Alabama Power with the APSC and as may be modified from time to time.

"**RGB Rules**" means the "Special Rules Governing the Application of Rate Rider RGB" of Alabama Power, or any successor in function, as filed by Alabama Power with the APSC and as may be modified from time to time.

"**Rate Rider RGB**" means "Rate Rider RGB, Supplementary, Back-up, or Maintenance Power", or any successor in function, as filed by Alabama Power with the APSC and as may be modified from time to time.

"**Representatives**" means, when used with respect to a Party, collectively or individually (as the context might indicate), such Party, its Affiliates and permitted successors and assigns, and the directors, officers, representatives, agents, contractors, subcontractors, and employees of each of them.

"**SERC**" means the SERC Reliability Corporation, including any successor thereto and subdivisions thereof.

"**Site**" means the land on which the Facility is located.

"**Station Service**" has the meaning set forth in Section 4.4.

"**Tax**" means any or all ad valorem, property, occupational, severance, emissions, carbon generation, first use, conservation, energy, transmission, utility, gross receipts, privilege, sales, use, excise and other taxes, fees, assessments, licenses, taxes based on net income or net worth, and any other charges imposed by a Governmental Authority, together with any interest and penalties thereon.

"**Term**" has the meaning set forth in Section 3.2, as may be extended pursuant to Section 3.2.

1.2 Interpretation. Whenever the term "including" is used herein in connection with a listing of items included within a prior reference, such listing shall be interpreted to be illustrative only, and shall not be interpreted as a limitation on or exclusive listing of the items included within the prior reference. Any reference in this Agreement to "Section," "Article," or "Appendix," shall be references to this Agreement unless otherwise stated, and all such Appendices shall be incorporated in this Agreement by reference. Unless specified otherwise, a reference to a given agreement or instrument, and all schedules, exhibits, appendices and attachments thereto, shall be a reference to that agreement or instrument as modified, amended, supplemented and restated, and in effect from time to time. Unless otherwise stated, any reference in this Agreement to any entity shall include its permitted successors and assigns, and in the case of any Governmental Authority, any entity succeeding to its functions and capacities.

ARTICLE 2

DEVELOPMENT STANDARDS FOR NEW FACILITIES

2.1 Standard for Development. QF shall design, engineer, construct, test, commission the Facility in accordance with Prudent Industry Practices and applicable Legal Requirements.

2.2 Status of the Facility. No later than the end of each Month prior to the Initial Delivery Date, QF shall deliver a written report to Alabama Power describing the progress of development and construction of the Facility, including the estimated date that mechanical completion will occur and the estimated date that the Facility will initially synchronize to the Electric System.

ARTICLE 3

INITIAL DELIVERY DATE; TERM AND TERMINATION; APSC APPROVAL

3.1 Initial Delivery Date; Failure to Achieve Initial Delivery Date.

3.1.1 QF shall notify Alabama Power of the estimated Initial Delivery Date at least forty-five (45) Days prior to such date or such shorter period as the Parties may agree.

3.1.2 In the event that QF believes that all of the Initial Delivery Criteria have been achieved, QF shall provide Alabama Power notice thereof.

3.1.3 After the Initial Delivery Criteria have been satisfied, QF shall provide Alabama Power with at least fifteen (15) Days prior notice of the actual Initial Delivery Date or such shorter period as the Parties may agree.

3.1.4 In the event that QF fails to reach the Initial Delivery Date within five (5) years of the Effective Date, then this Agreement shall terminate without further action by the Parties. Upon such termination, neither Party shall have any further obligation

under this Agreement, except for obligations and liabilities that survive termination as provided in this Agreement or which accrue prior to or at termination.

3.2 Term. This Agreement shall become effective as of the Effective Date. The "Term" of this Agreement shall begin on the Initial Delivery Date and shall continue until the end of the Initial Period; provided that QF shall be entitled to terminate the Agreement by providing notice to Alabama Power as soon as reasonably practicable prior to the end of said Initial Period, which is the March 31 following the Initial Delivery Date, unless otherwise changed by order of the APSC. Thereafter, this Agreement shall automatically renew for additional Annual Periods; provided that QF shall be entitled to terminate the Agreement by providing notice to Alabama Power no later than sixty (60) Days prior to the end of the then-existing Term, but no earlier than one hundred twenty (120) Days prior to the end of such then-existing Term.

3.3 Survival. All provisions of this Agreement that expressly or by implication come into or continue in force and effect following the expiration or termination of this Agreement shall remain in effect and be enforceable following such expiration or termination, including all provisions that must survive in order to give force and effect to the rights and obligations of the Parties under this Agreement.

3.4 Adherence to Rate CPE. This Agreement is a Standard Contract (Attachment A) under Rate CPE, and is subject to review by the Staff of the APSC to ensure conformity with the terms and conditions of the Standard Contract (Attachment A) on file with and approved by the APSC. Following the Effective Date, if prior to the commencement of a Term, a new version of the Standard Contract (Attachment A) is filed with and approved by the APSC, the terms and conditions of that version of the Standard Contract (Attachment A) shall be incorporated by reference and, in the event of a conflict with this Agreement, control the rights and obligations of the Parties, subject to the right of QF to any pricing for capacity established pursuant to a legally enforceable obligation consistent with 18 C.F.R. § 292.304(d).

ARTICLE 4

OPERATIONAL CONSIDERATIONS

4.1 General Standards. In furtherance of the safety and reliability of the Electric System, QF shall at its sole cost and expense manage, control, construct, operate and maintain the Facility (or cause others to manage, control, construct, operate and maintain the Facility) in a manner consistent with Prudent Industry Practices, applicable Legal Requirements, and applicable reliability standards and operating policies of NERC and SERC. QF shall also diligently seek, obtain, maintain, comply with and, as necessary, renew and modify from time to time, any and all Consents. QF shall designate one or more representatives that Company may contact regarding any operational matter relating to the Facility and provide Company with contact information (including telephone number and email address) for such representatives.

4.2 Scheduled Outages. QF shall submit to Alabama Power, before October 1 of each calendar year, a schedule of planned Facility outages during the next calendar year, as well as any updates to such schedule as they become known.

4.3 Unplanned Outages. In addition to scheduled outages under Section 4.2, QF shall use commercially reasonable efforts to immediately notify Alabama Power of any event or condition that will result in any portion of the Facility not being able to produce energy. Such notices shall contain information describing such event or condition, the beginning date and time of such event or condition, the expected end date and time of such event or condition, the amount of Delivered Energy that QF expects will be provided during such event or condition, and any other information reasonably requested by Alabama Power. QF shall provide Alabama Power with such notice by any reasonable means required by Alabama Power, including by telephone or electronic mail.

4.4 Station Service. If QF is located in the service territory of Alabama Power, QF shall be required to enter into a separate agreement with Alabama Power for the supply of electrical energy necessary to serve the electrical requirements of the Facility ("Station Service") pursuant to the "Supplementary Power" section of Rate Rider RGB and the RGB Rules; provided that QF shall not be required to procure firm back-up power from Alabama Power.

4.5 Availability Forecasts. By no later than 5:00 a.m. CPT of each Day, QF shall provide, in a format reasonably acceptable to Alabama Power, a non-binding forecast of energy to be delivered under this Agreement for the next Day and each of the next seven (7) Days. Each such notice shall clearly identify, for each Hour, QF's forecast of all amounts of available energy to be delivered pursuant to this Agreement. In the event that QF foresees that actual deliveries under this Agreement for any Day will be materially different than a forecast previously provided for such Day, QF shall, as soon as reasonably possible, provide notice to Alabama Power of such change and an updated forecast.

4.6 Weather Data. At Alabama Power's direction, QF shall make available, in a form reasonably acceptable to Alabama Power, all data from any weather monitoring portals and/or weather stations that QF elects to install at the Site.

ARTICLE 5

INTERCONNECTION AND METERING.

5.1 Interconnection.

5.1.1 QF shall maintain and use diligent efforts to pursue interconnection of the Facility to the Electric System in accordance with the interconnection process of the Interconnection Provider, including the timely execution and submission of all required study agreements, fees, deposits and other charges. QF shall be responsible for all costs and expenses associated with all studies, fees, deposits and other charges in connection with such interconnection request.

5.1.2 The Interconnection Agreement shall contain terms, conditions and requirements pursuant to the interconnection policies and requirements of the Interconnection Provider and its Affiliates. Pursuant to the Interconnection Agreement, QF shall be responsible for all costs and expenses that are associated with the ownership, design, engineering, procurement, construction, installation, operation, maintenance, repair and replacement of all Interconnection Facilities and Upgrades.

5.1.3 The Interconnection Agreement shall be maintained throughout the Term of this Agreement. QF shall promptly provide a copy of, and any amendments to, such Interconnection Agreement to Alabama Power in accordance with the notice provisions of Section 13.12. QF is responsible for determining all transmission and/or distribution-related rules, practices and policies with which it must comply.

5.1.4 If the Interconnection Agreement concerns an interconnection with the Company's transmission facilities and requires QF to be capable of receiving and responding to dispatch setpoints in real time, then QF shall be subject to and comply with the provisions of **Appendix B**.

5.2 Metering.

5.2.1 At QF's sole cost and expense, Alabama Power or its Affiliate may design, locate, construct, install, own, operate and maintain meters and such other facilities, equipment and devices as Alabama Power deems necessary or appropriate in order to determine the amount of electric energy delivered by QF to Alabama Power under this Agreement, including for purposes of calculating the payments under **Appendix A**, or to determine the amount of electric energy delivered by Alabama Power to QF, all in accordance with Prudent Industry Practices.

5.2.2 All meters and other such facilities, equipment and devices installed by Alabama Power shall be and remain the property of Alabama Power.

5.3 Inspection and Testing of Meters. Alabama Power or its Affiliate shall have the right to inspect and test all meters installed by Alabama Power or its Affiliate in order to measure the output of the Facility at such times as Alabama Power deems necessary or appropriate. Upon reasonable written request to Alabama Power, QF may request inspection or testing of any such meters. QF shall be responsible for, and shall reimburse Alabama Power for, all costs and expenses incurred by or on behalf of Alabama Power or its Affiliate in connection with such inspections or tests requested by QF unless such inspection or test reveals that such meters are inaccurate by more than two percent (2%) from the measurement made by the reference meter used in the test, in which event Alabama Power shall bear all costs of such testing. Alabama Power shall give reasonable written notice to QF of the time and place when any such meter is to be inspected or tested, and QF may have a representative present at such test or inspection.

5.4 Inaccuracies. If any seal securing the metering is found broken, if the metering fails to register, or if the measurement made by a metering device is found upon testing to vary by more than the allowable margin of metering error (as reflected in the

rules and regulations of the APSC), based upon the measurement made by the reference meter used in the test, an adjustment shall be made correcting all measurements of electric energy made by the metering during: (i) the actual period when inaccurate measurements were made by the metering, if that period can be determined to the mutual satisfaction of the Parties; or (ii) if such actual period cannot be determined to the mutual satisfaction of the Parties, the second half of the period from the date of the last test of the metering to the date such failure is discovered or such test is made ("Adjustment Period"). If the Parties are unable to agree on the amount of the adjustment to be applied to the Adjustment Period, the amount of the adjustment shall be determined (a) by correcting the error if the percentage of error is ascertainable by calibration, tests or mathematical calculation, or (b) if not so ascertainable, by estimating on the basis of deliveries under similar conditions during the period since the last test. Within thirty (30) Days after the determination of the amount of any adjustment, Alabama Power shall either (a) pay QF any additional amounts then due for deliveries of electric energy during the Adjustment Period in accordance with **Appendix A**, or (b) be entitled to a credit against any subsequent payments for electric energy, as appropriate.

5.5 Electrical Loss Factor Adjustment to Interconnection Point. In the event, and to the extent, that the meters used to determine the output of the Facility are not measuring deliveries of electric energy physically at the Interconnection Point, the metered amount of electric energy shall be adjusted to or from the Interconnection Point (as applicable) by a loss factor determined by Alabama Power, in accordance with Prudent Industry Practices. Alabama Power shall provide QF with a copy of any study or analysis prepared by Alabama Power in determining such loss factor.

ARTICLE 6

PURCHASE AND SALE OF ENERGY

6.1 Sale and Purchase of Energy.

6.1.1 Commencing on the Initial Delivery Date and thereafter for the Term, subject to the terms and conditions of this Agreement, QF shall sell and deliver to Alabama Power, and Alabama Power shall purchase and receive from QF, all Delivered Energy, with Alabama Power's payment obligation determined pursuant to Section 8.1 and **Appendix A**.

6.1.2 Alabama Power shall not be required to receive, purchase or compensate QF for energy not delivered or produced by the Facility as a result of: (i) the separation of the Facility from the Electric System pursuant to the RGB Rules; (ii) a Force Majeure Event affecting the facilities or equipment of either Party; or (iii) the interruption of deliveries or disconnection of the Facility pursuant to the Interconnection Agreement.

6.1.3 Notwithstanding any other provision of this Agreement, if payment for Delivered Energy is being determined pursuant to Monthly Payment Calculation Option 2, Alabama Power shall not be required to receive energy, or purchase or compensate QF for energy, during any period during which, due to operational

circumstances, Alabama Power reasonably expects that a purchase from QF will result in costs greater than those which Alabama Power would incur if it did not make such purchase, but instead generated an equivalent amount of energy itself, and Alabama Power (i) has provided QF at least 10 (ten) minutes prior notice via electronic (e.g., email, text) or telephonic communication, or (ii) has signaled QF to reduce output through the use of AGC equipment, as provided in **Appendix B**.

6.1.4 Notwithstanding any other provision of this Agreement, Alabama Power shall not be required to receive energy, or purchase or compensate QF for energy, during any period of system emergency, if Alabama Power reasonably expects that a purchase from QF will contribute to such emergency.

6.2 Exclusivity. From the Effective Date and throughout the Term, Alabama Power shall have exclusive rights to the entire electrical output of the Facility, and QF shall not sell, supply or otherwise provide electrical energy from the Facility to any other Person(s).

6.3 Electrical Products. The payments under this Agreement constitute full and complete compensation for all energy provided to Alabama Power, as well as for Electrical Products that are inherently embedded in or connected with such energy. Alabama Power shall not be required to accept or pay for any Electrical Products, if any, produced by or related to the Facility, and QF shall not seek separate or additional compensation from Alabama Power for any such Electrical Products under this Agreement or any other agreement, tariff or rate schedule or filing with any Governmental Authority.

6.4 Point of Delivery; Title. QF shall deliver energy from the Facility to Alabama Power at the Interconnection Point. Title to such electric energy shall pass from QF to Alabama Power at the Interconnection Point. QF covenants that it shall have good and marketable title to all energy delivered to Alabama Power at the Interconnection Point and that it has the right to, and will, sell and deliver such energy to Alabama Power free and clear of all liens and encumbrances.

ARTICLE 7

REGULATORY AND COMPLIANCE

7.1 Incorporation of RGB Rules. The RGB Rules are hereby incorporated into and made a part of this Agreement by reference, and QF shall be deemed to be a "Customer" as such term is used under such RGB Rules. The operation of the Facility and the sale and delivery of energy under this Agreement shall be subject to the terms and conditions of the RGB Rules, including those provisions of the RGB Rules that permit Alabama Power to separate the Facility from the Electric System under a condition that is likely to result in imminent significant disruption of service to customers or is imminently likely to endanger life or property.

7.2 Qualifying Facility Status. Throughout the Term of this Agreement, QF shall cause the Facility to be a Qualifying Facility and shall obtain, and maintain, certification of the Facility as a Qualifying Facility pursuant to the requirements of FERC and other applicable Governmental Authorities. If at any time the Facility ceases to be a Qualifying Facility for any reason, then Alabama Power shall be entitled to immediately terminate this Agreement in its sole and absolute discretion. If Alabama Power so terminates this Agreement, Alabama Power shall have no further obligation to purchase or receive, and QF shall have no further obligation to sell or provide, any energy under this Agreement.

7.3 Termination of PURPA Purchase Obligation. Notwithstanding anything to the contrary in this Agreement, in the event that Alabama Power is no longer required under PURPA to purchase the electric energy produced by the Facility (whether due to the repeal or modification of PURPA or by specific reference to QF, this Agreement or by general order or issuance referencing purchases of energy from Qualifying Facilities under PURPA or other reasons), then Alabama Power shall be entitled to terminate this Agreement, upon fifteen (15) days' written notice to QF, in its sole and absolute discretion. If Alabama Power so terminates this Agreement, Alabama Power shall have no further obligation to purchase or receive, and QF shall have no further obligation to sell or provide, any energy under this Agreement.

7.4 Change of Rates. In the event that FERC or another Governmental Authority takes any action, including imposition of a rule, regulation, order or other requirement, which causes (including by specific reference to this Agreement or by general order or issuance referencing purchases of energy from Qualifying Facilities under PURPA) a change in the rates or amounts that Alabama Power is required to pay to QF or to Qualifying Facilities in general, then upon 30 days' written notice, QF agrees to be bound by such change and agrees to adjust the energy rates and amounts charged under this Agreement to the rates and amounts required to be paid by Alabama Power as a result of such action.

7.5 Change In Law. Notwithstanding any provision in this Agreement, in the event that there are changes to Legal Requirements or any interpretation thereof, including changes to laws or regulations regulating or imposing a Tax, fee or other charge on discharges, emissions or disposals from the Facility, which cause QF to incur additional costs or expense associated with the Facility or in performing under this Agreement, QF agrees to be responsible for all of such costs and expenses and acknowledges that the payments made by Alabama Power to QF pursuant to this Agreement shall not be altered as a result of such changes to Legal Requirements or interpretations thereof.

7.6 Compliance. QF represents, warrants, and covenants that throughout the Term QF shall: (i) be in material compliance with all Legal Requirements with respect to the design, development, construction, ownership, operation and maintenance of the Facility, including all required Consents, and, if applicable, the mitigation of environmental impacts associated with the Facility and QF's actions; and (ii) pay all costs, expenses, charges and fees in connection therewith. Upon request by Alabama Power, QF shall

provide Alabama Power with copies of all compliance information, including without restriction, copies of the necessary Consents.

7.7 General Services Administration Flow-Down Provisions. QF shall at all times comply with the provisions of **Appendix D** to this Agreement.

ARTICLE 8

PAYMENT PROCEDURE

8.1 Billing and Payment.

8.1.1 Within a reasonable period of time after the end of each Month during the Term, Alabama Power or its Affiliate shall provide QF with a statement ("Monthly Statement") containing: (i) the meter readings that measure the amount of Delivered Energy pursuant to this Agreement for such Month; and (ii) the amount of the payments required to be made by Alabama Power for such Month under **Appendix A** and the calculation thereof. By no later than the last Day of the Month following each Month for which a Monthly Statement is provided by Alabama Power, Alabama Power shall pay to QF the payments set forth in such Monthly Statement.

8.1.2 Within ten (10) Business Days after providing the Monthly Statement to QF under Section 8.1.1, except to the extent that Alabama Power nets amounts payable by QF against amounts payable by Alabama Power in the Monthly Statement, Alabama Power or its Affiliate shall provide QF with an invoice stating all amounts that are required to be paid by QF to Alabama Power, including the Monthly Administration Charge for each Month. Payment by QF of each such invoice shall be due and payable on or before the twentieth (20th) Day after QF's receipt of such invoice; provided, however, that any amount due from QF pursuant to a provision of this Agreement that provides for a specific period for payment shall be due and payable as set forth in such provision.

8.1.3 If any amount required to be paid under this Agreement is due on a Day other than a Business Day, then payment shall be due on the next succeeding Business Day. Payments under this Agreement shall be made on or before the date due in immediately available funds through wire transfer of funds or other means acceptable to the Parties. In the event payment is not made on or before the required due date (or, if such date is not a Business Day, the next succeeding Business Day), then interest shall be added to the overdue payment, from the date such overdue payment was due until such overdue payment together with interest is paid, which interest shall be compounded Monthly at the Interest Rate.

8.2 Billing Disputes and Adjustments.

8.2.1 In the event that either Party has a bona fide dispute with the applicable Monthly Statement or invoice submitted under this Agreement, such Party shall provide notice to the other Party that: (i) states the good faith basis for the dispute, (ii) specifies the portion of the amount in dispute, if any, and (iii) provides documentation

reasonably supporting the determination of the disputed amount. The Party required to make payment shall be entitled to withhold payment of such disputed amount until the dispute is resolved.

8.2.2 If any overcharge or undercharge in any form whatsoever shall at any time be found and substantiated, and the amounts set forth in the applicable Monthly Statement or invoice therefore has been paid, the Party that has been paid the overcharge shall refund the amount of the overcharge to the other Party, and the Party that has been undercharged shall pay the amount of the undercharge to the other Party, within thirty (30) Days after final determination thereof; provided, however, that no retroactive adjustment shall be made for any overcharge or undercharge unless written notice of the same is provided to the other Party within a period of three hundred sixty-five (365) Days from the date of the Monthly Statement or invoice in which such overcharge or undercharge was first included. Reimbursements determined to be due from a Party under this Section 8.2.2 shall be included on the next Monthly Statement or invoice (as applicable) and shall include interest from the date the original payment was received until the date of such reimbursement together with interest compounded Monthly at the Interest Rate.

8.3 Netting. The Parties hereby agree that they shall discharge all obligations due and owing to each other as of the same date under this Agreement through netting, in which case all amounts owed by each Party to the other Party under this Agreement shall be netted so that only the excess amount remaining due shall be paid by the Party who owes it.

ARTICLE 9

REPRESENTATIONS AND WARRANTIES

9.1 Execution. Each Party represents and warrants to the other Party as of the Effective Date that: (i) it has all the necessary corporate or _____ authority (as applicable) and all legal power and authority and has been duly authorized by all necessary corporate or _____ action (as applicable) to enable it to lawfully execute, deliver and perform under this Agreement; and (ii) it is a valid legal entity duly organized and validly existing in good standing under the laws of the state of its formation and is, to the extent required, qualified to do business in the State of Alabama.

9.2 Binding Obligations. Each Party represents and warrants to the other Party that, as of the Effective Date, this Agreement is the valid and binding obligation of such Party, enforceable against such Party in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, fraudulent conveyance, moratorium or other similar laws affecting enforcement generally, and by equitable principles regardless of whether such principles are considered in a proceeding at law or in equity.

9.3 Execution and Consummation. Each Party represents and warrants to the other Party that, as of the Effective Date, the execution and delivery of this Agreement,

the consummation of the transactions contemplated under this Agreement, and the fulfillment of and compliance with the provisions of this Agreement do not and will not conflict with any of the terms, conditions or provisions of its organizational documents or any Legal Requirement applicable to it.

9.4 Disclaimer. QF understands and agrees that Alabama Power's review of any material or information related to the Facility or any physical inspection of the Facility conducted by Alabama Power under any provision of this Agreement is solely for its own information. Any such review or inspection, or any consent to materials, information or plans provided by QF, shall not be construed as endorsing the design, fitness or operation of the Facility nor as a warranty or guarantee, and in no event shall Alabama Power be deemed to have accepted any condition of the Facility or any performance by QF that is not in full compliance with the terms of this Agreement. QF shall in no way represent to any Person that, as a result of Alabama Power's receipt and review of any material or information, any inspections by Alabama Power, or Alabama Power's execution of this Agreement, that Alabama Power is responsible for, has endorsed, warranted or otherwise approved any aspect or characteristic of the Facility.

ARTICLE 10

EVENTS OF DEFAULT

10.1 Default by QF. Any one or more of the following events shall constitute an Event of Default by QF and shall give Alabama Power the right, without limitation, to exercise the remedies specified in Section 10.3:

(i) QF fails to pay any amount payable by QF to Alabama Power under this Agreement when due, which failure has continued for thirty (30) Days after notice thereof has been given by Alabama Power to QF;

(ii) QF fails to perform or comply with any other material term or condition of this Agreement and fails to conform to said term and condition within sixty (60) Days after a demand by Alabama Power to do so;

(iii) QF fails to comply with the terms and conditions of Section 13.1;

(iv) QF becomes insolvent, becomes subject to bankruptcy or receivership proceedings, or dissolves as a legal business entity;

(v) any representation or warranty of QF to Alabama Power is false or misleading in any material respect when made and QF fails to conform to said representation or warranty within sixty (60) Days after a demand by Alabama Power to do so; or

(vi) the Interconnection Agreement is terminated due to an event of default of QF.

10.2 Default by Alabama Power. Any one or more of the following events shall constitute an Event of Default by Alabama Power and shall give QF the right, without limitation, to exercise the remedies specified in Section 10.3:

(i) Alabama Power fails to pay any amount payable by Alabama Power to QF under this Agreement when due, which failure has continued for thirty (30) Days after notice thereof has been given by QF to Alabama Power;

(ii) Alabama Power fails to perform or comply with any other material term or condition of this Agreement and fails to conform to said term or condition within sixty (60) Days after a demand by QF to do so;

(iii) Alabama Power becomes insolvent, becomes subject to bankruptcy or receivership proceedings, or dissolves as a legal business entity; or

(iv) any representation or warranty of Alabama Power to QF is false or misleading in any material respect when made and Alabama Power fails to conform to said representation or warranty within sixty (60) Days after a demand by QF to do so.

10.3 Remedies for Events of Default. For any Event of Default specified under Section 10.1 or Section 10.2, the non-defaulting Party may in its discretion terminate this Agreement by giving written notice thereof to the defaulting Party and/or exercise all remedies available at law or in equity.

10.4 Limitation of Liability. NEITHER PARTY SHALL BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, PUNITIVE, EXEMPLARY OR INDIRECT DAMAGES, OR LOSSES OR DAMAGES FOR LOST REVENUE OR LOST PROFITS OR OTHER BUSINESS INTERRUPTION DAMAGES, BY STATUTE, IN TORT OR CONTRACT, WHETHER FORESEEABLE OR NOT, ARISING OUT OF, OR IN CONNECTION WITH THIS AGREEMENT; PROVIDED, HOWEVER, THAT SUCH LIMITATION SHALL NOT APPLY IN THE CASE OF AMOUNTS OWED BY ALABAMA POWER TO THIRD PARTIES AND FOR WHICH ALABAMA POWER IS ENTITLED TO INDEMNIFICATION UNDER ARTICLE 11. ALABAMA POWER SHALL HAVE NO LIABILITY TO QF UNDER ANY LEGAL OR EQUITABLE THEORY FOR ANY FAILURE OR INABILITY OF QF TO CONSUMMATE ANY SALE OF ENVIRONMENTAL ATTRIBUTES OR TO HAVE ANY ENVIRONMENTAL ATTRIBUTES CERTIFIED BY ANY ORGANIZATION FOR ANY PURPOSE. QF SHALL INDEMNIFY AND HOLD ALABAMA POWER HARMLESS FROM ANY COSTS REASONABLY INCURRED BY ALABAMA POWER IN DEFENDING ANY CLAIM RELATED TO THE ENVIRONMENTAL ATTRIBUTES GENERATED BY THE QF, INCLUDING ANY CLAIM RELATED TO FAILURE OR INABILITY TO CONSUMMATE A SALE OF SUCH ENVIRONMENTAL ATTRIBUTES OR TO CERTIFY SUCH ENVIRONMENTAL ATTRIBUTES FOR ANY PURPOSE.

ARTICLE 11

INDEMNIFICATION

11.1 Indemnification. QF shall release, defend, indemnify and hold harmless Alabama Power and its Representatives, from and against any and all loss, damage, liability, claims, including claims and actions involving injury to or death of any person or damage to property, damages, penalties, demands, fines, forfeitures, suits, actions and causes of action and all costs and expenses incident thereto, including court costs, costs of defense, costs of investigation, settlements, judgments, and attorneys' fees, directly or indirectly resulting from the development, construction, use and operation of the Facility and all activities occurring on QF's side of the Point of Change in Ownership, including those which are alleged to be caused by, arise out of, or are in connection with: (i) QF's or its Representatives' environmental permitting or QF's or its Representatives' compliance with any Consent or Legal Requirement; (ii) QF's, its Representatives', or the Facility's failure to comply with any Consent or Legal Requirement; (iii) QF's or its Representatives' acts and omissions in connection with the performance, or failure thereof, of obligations or representations and warranties under this Agreement; (iv) any negligent (including strict liability), wanton, or intentional act or omission of QF, anyone directly or indirectly employed by QF, specifically including QF's agents, contractors, and subcontractors; and (v) the performance or non-performance of activities by QF's contractors and/or subcontractors.

11.2 Procedure. If Alabama Power becomes entitled to indemnification under Section 11.1 or any other provision of this Agreement, Alabama Power shall promptly notify QF of any claim or proceeding in respect of which it is to be indemnified. Such notice shall be given as soon as reasonably practicable after Alabama Power becomes aware of such claim or proceeding. Failure to give such notice shall not excuse an indemnification obligation. QF shall assume the defense thereof with counsel designated by Alabama Power; provided, however, that if the defendants in any such action include both QF and Alabama Power, and if Alabama Power reasonably concludes that there may be legal defenses available to it that are different from or additional to, or inconsistent with, those available to the QF, Alabama Power shall have the right to select and be represented by separate counsel, at the expense of QF. If QF fails to assume the defense of a claim, the indemnification of which is required under this Agreement, Alabama Power may, at the expense of QF, contest, settle, or pay such claim.

11.3 Survival. All provisions of this Article 11 and all other indemnity obligations of the Parties under this Agreement shall survive termination of this Agreement, by default or otherwise, regardless of whether such obligations accrue prior to or after such termination. QF's indemnity obligations contained in this Agreement shall be independent of and shall not be limited by or limit the obligations of QF to procure and maintain insurance as may be required by any other agreement between the Parties.

ARTICLE 12

FORCE MAJEURE

12.1 Force Majeure. For the purposes of this Agreement, a "Force Majeure Event" as to a Party means any occurrence, nonoccurrence or set of circumstances that is beyond the reasonable control of such Party and is not caused by such Party's negligence or lack of due diligence, including flood, drought, ice, earthquake, windstorm or eruption; fire; explosion; invasion, civil war, commotion or insurrection; sabotage or vandalism; military or usurped power; or act of God or of a public enemy.

12.2 No Breach or Liability. A Party shall be excused from performing its obligations under this Agreement and shall not be liable in damages or otherwise if and to the extent that it is unable to so perform or are prevented from performing by a Force Majeure Event, provided that such Party shall:

(i) give the other Party notice thereof, followed by written notice if the first notice is not written, as promptly as possible after such Party becomes aware of such Force Majeure Event, describing the particulars of such Force Majeure Event;

(ii) use its reasonable best efforts to remedy its inability to perform as soon as practicable; provided, however, that this Section 12.2 shall not require the settlement of any strike, walkout, lockout or other labor dispute on terms which, in the sole judgment of the Party involved in the dispute, are contrary to its interest; provided further, that the settlement of strikes, lockouts or other labor disputes shall be entirely within the discretion of the Party having the difficulty; and

(iii) when it is able to resume performance of its obligations under this Agreement, give the other Party written notice to that effect.

12.3 Suspension of Performance. The suspension of performance due to a Force Majeure Event shall be of no greater scope and of no longer duration than is required by such Force Majeure Event. No Force Majeure Event shall extend this Agreement beyond its stated Term.

ARTICLE 13

MISCELLANEOUS

13.1 Confidentiality. QF acknowledges and agrees that the information contained within all Monthly Statements and all invoices under this Agreement, and all amounts paid by the Parties to one another under this Agreement, constitute confidential and proprietary information of Alabama Power ("Confidential Information"). During the Term of this Agreement and for a period of two (2) years thereafter, QF shall not disclose such Confidential Information to any Person except for those of its officers, directors,

employees, representatives and any Collateral Assignees who agree to maintain the confidentiality of such Confidential Information in accordance with the terms hereof and who need to know the Confidential Information for purposes of performance under this Agreement.

13.2 Assignment. Neither Party shall assign this Agreement or any portion thereof without the prior written consent of the other Party which consent shall not be unreasonably withheld (except that Alabama Power may assign this Agreement or any portion thereof to any Affiliate of Alabama Power without the consent of QF); provided further, that: (i) any assignee shall expressly assume assignor's obligations under this Agreement and (ii) unless expressly approved by the other Party to this Agreement, which approval shall not be unreasonably withheld, no assignment, whether or not consented to, shall relieve the assignor of its obligations under this Agreement in the event its assignee fails to perform. QF may, upon notice to Alabama Power, make a collateral assignment of its interest in this Agreement to one or more Collateral Assignees that does not otherwise affect QF's performance obligations under this Agreement.

13.3 Taxes.

13.3.1 QF shall pay, or cause to be paid, all Taxes on or with respect to: (i) the Facility, including its development, permitting, design, engineering, procurement, construction, testing, startup, ownership, leasing, financing, operation, and maintenance; (ii) the production, sale and provision of energy under this Agreement; (iii) all Taxes that are associated with emissions from the Facility, regardless of whether such Taxes are assessed on Alabama Power or QF; and (iv) QF's procurement and use of fuel. It is the intent of the Parties that such Taxes for which QF is responsible shall include any and all sales, transfer and other similar Taxes on the sale to Alabama Power of energy under this Agreement, whether such Taxes are imposed on Alabama Power or QF.

13.3.2 In the event Alabama Power is required by law or regulation to remit or pay Taxes that are QF's responsibility under this Agreement, Alabama Power may deduct the amount of any such Taxes from the amounts otherwise due to QF under this Agreement, provided that if Alabama Power does not elect to deduct such amount, QF shall pay such amount to Alabama Power upon request by Alabama Power.

13.3.3 QF shall provide Alabama Power with all information requested by it for the purpose of reporting payments made pursuant to this Agreement to any federal or state authorities, including a fully completed Form W-9.

13.4 Variable Interest Entity.

13.4.1 Within five (5) Days after the Effective Date and thereafter prior to the commencement of the Initial Period and each Annual Period of the Term, QF shall provide Alabama Power with the Variable Interest Entity ("VIE") information in the form of **Appendix F** attested to and signed by a duly authorized officer of QF. QF covenants to promptly notify Alabama Power following any determination made by QF or its independent auditor that QF must be partially or fully deconsolidated from the books of

QF's parent, as the case may be, or any other changes that require reconsideration, including a change in the primary benefactor. Should existing accounting standards be modified or new standards adopted which supersede the standards at the time of execution of this Agreement, then **Appendix F** shall be modified accordingly for QF and Alabama Power to account for this arrangement appropriately in their respective books and records.

13.4.2 In the event that Alabama Power's independent accountants determine that consolidation of QF, or any of its Affiliates or permitted assigns, as a VIE in Alabama Power's or any of its Affiliates' financial statements has occurred, Alabama Power may provide notice to QF of such condition. In addition, within ten (10) Business Days after receiving any such notice, QF shall provide all necessary financial information to Alabama Power to enable Alabama Power (and any of its applicable Affiliates) to properly consolidate QF (and any of its applicable Affiliates) on a timely basis.

13.5 Governing Law; Venue; Waiver of Jury Trial.

13.5.1 The validity, interpretation and performance of this Agreement, and each of its provisions, shall be governed by the laws of the State of Alabama, without giving effect to the principles of conflict of laws.

13.5.2 EACH PARTY HERETO HEREBY AGREES THAT THE UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF ALABAMA AND ANY ALABAMA STATE COURT SITTING IN JEFFERSON COUNTY, ALABAMA SHALL HAVE EXCLUSIVE JURISDICTION FOR THE PURPOSES OF ALL LEGAL PROCEEDINGS AND RESOLVING ALL DISPUTES ARISING OUT OF OR RELATING TO THIS AGREEMENT. EACH PARTY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY LAW, ANY OBJECTION WHICH IT MAY NOW OR HEREAFTER HAVE TO THE LAYING OF THE VENUE OF ANY SUCH PROCEEDING BROUGHT IN SUCH A COURT AND ANY CLAIM THAT ANY SUCH PROCEEDING BROUGHT IN SUCH A COURT HAS BEEN BROUGHT IN AN INCONVENIENT FORUM.

13.5.3 EACH PARTY HERETO HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING OR COUNTERCLAIM ARISING OUT OF OR RELATING TO THIS AGREEMENT.

13.6 No Partnership. QF and Alabama Power do not intend for this Agreement to, and this Agreement shall not, create any joint venture, partnership, association taxable as a corporation, or other entity for the conduct of any business for profit.

13.7 Successors and Assigns. This Agreement shall inure to the benefit of and be binding upon any respective successors and assigns of QF and Alabama Power.

13.8 No Third Party Benefit. Nothing in this Agreement shall be construed to create any duty, obligation or liability of Alabama Power to any person or entity not a party to this Agreement.

13.9 No Affiliate Liability. Notwithstanding any other provision of this Agreement, no Affiliate of Alabama Power shall have any liability whatsoever for any party's performance, nonperformance or delay in performance under this Agreement.

13.10 No Waiver. Neither Alabama Power's nor QF's failure to enforce any provision or provisions of this Agreement shall in any way be construed as a waiver of any such provision or provisions as to any future violation thereof nor prevent it from enforcing each and every other provision of this Agreement at such time or at any time thereafter. The waiver by either Alabama Power or QF of any right or remedy shall not constitute a waiver of its right to assert said right or remedy, at any time thereafter, or any other rights or remedies available to it at the time of or any time after such waiver.

13.11 Amendment. This Agreement may be amended by, and only by, a written instrument duly executed by each of QF and Alabama Power, which has received all approvals of Governmental Authorities of competent jurisdiction necessary for the effectiveness thereof.

13.12 Notices. Any notice, demand, request, statement, or correspondence provided for in this Agreement, or any notice which a Party may desire to give to the other in connection with this Agreement, shall be in writing (unless otherwise expressly provided by this Agreement) and shall be considered duly delivered when received by overnight delivery by a national and reputable delivery service, at the address(es) and to the attention of the person(s) listed below.

(i) **To Alabama Power**:

Alabama Power Company
Attn: Executive Vice President and Chief Financial Officer and Treasurer
600 18th Street North
Birmingham, AL 35291

with copies to:

Alabama Power Company
Attn: Director of Forecasting and Resource Planning
600 18th Street North
Birmingham, AL 35291

(ii) **To QF**:

with a copy to:

unless Alabama Power or QF shall have designated a different officer or address for itself by written notice to the other.

13.13 Counterparts; Electronic Copies. This Agreement may be executed by facsimile or PDF (electronic copy) and in counterparts, all of which for all purposes will be deemed to be an original and all of which, taken together, constitute one and the same instrument.

13.14 Articles and Section Headings. The descriptive headings of the various articles and sections of this Agreement have been inserted for convenience of reference only and shall in no way modify or restrict any of the terms or provisions under this Agreement.

13.15 Transfer of Information Acknowledgement. QF agrees to execute contemporaneously with the execution of this Agreement, the Transfer of Information Acknowledgement attached as **Appendix E**, and Alabama Power agrees to the limited use and confidential treatment of such information as set forth in **Appendix E**.

13.16 Entire Agreement; No Reliance. This Agreement constitutes the entire understanding between the Parties and supersedes any previous agreements related to the subject matter hereof between the Parties. The Parties have entered into this Agreement in reliance upon the representations and mutual undertakings contained herein and not in reliance upon any oral or written representations or information provided by one Party to the other Party not contained or incorporated herein.

[The next page is the signature page.]

IN WITNESS WHEREOF, QF and Alabama Power have caused this Agreement to be executed by their duly authorized representatives on the day and year first above written.

ALABAMA POWER COMPANY

By: _____

Name: _____

Title: _____

[QF]

By: _____

Name: _____

Title: _____

APPENDIX A

CALCULATION OF MONTHLY PAYMENTS

By no later than sixty (60) Days prior to the commencement of the Initial Period, QF shall provide notice to Alabama Power electing either Option 1 or Option 2 under Section 2 below for the pricing (and associated terms and conditions) that shall apply for the Initial Period. In addition, in each notice (if any) from QF that extends the Term for an Annual Period pursuant to Section 3.2 of this Agreement, QF shall elect either Option 1 or Option 2 under Section 2 below for the pricing (and associated terms and conditions) that shall apply for the Annual Period to which such notice applies. After QF provides a notice electing either Option 1 or Option 2 for the Initial Period or a given Annual Period, such notice shall be irrevocable for the entirety of such period. Notwithstanding the foregoing, if **Appendix B** applies to QF, then Option 2 pricing shall apply for the term of this Agreement.

1. Definitions.

For purposes of this **Appendix A**, in addition to the defined terms in this Agreement, the following terms shall have the meanings set forth below:

"**AIER**" means the "Associated Interchange Energy Rate" or "AIER" (or applicable successor(s) rate thereto) (in $/MWh), as determined under the IIC.

"**IIC**" means that certain document, the Southern Company System Intercompany Interchange Contract, as filed pursuant to 119 FERC 61,065 (2007) and designated as Southern Company Services, Inc., Second Revised Rate Schedule FERC Number 138, by and among Alabama Power and certain of its Affiliates, including the Allocation Methodology and Periodic Rate Computation Manual attached to, and incorporated in, the IIC, and excluding periodic informational filings, as the same may be amended and restated, or any successor contract filed with FERC among Alabama Power and certain of its Affiliates for coordinated operations.

"**Non-Summer**" means the November 1 through March 31 period as set forth in Rate CPE.

"**Non-Summer Off-Peak Period**" means, with respect to a given Non-Summer Month, all Hours of such Month occurring during the "Non-Summer Off-Peak" (or similar designation) periods, as set forth in the Rate CPE that applies for such Month, including all portions of such periods when Delivered Energy is not provided by QF.

"**Non-Summer Peak Period**" means, with respect to a given Non-Summer Month, all Hours of such Month occurring during the "Non-Summer Peak" (or similar designation) periods, as set forth in the Rate CPE that applies for such Month, including all portions of such periods when Delivered Energy is not provided by QF.

"**Summer**" means the April 1 through October 31 period as set forth in Rate CPE.

"**Summer Off-Peak Period**" means, with respect to a given Summer Month, all Hours of such Month occurring during the "Summer Off-Peak" (or similar designation) periods, as set forth in the Rate CPE that applies for such Month, including all portions of such periods when Delivered Energy is not provided by QF.

"**Summer Peak Period**" means, with respect to a given Summer Month, all Hours of such Month occurring during the "Summer Peak" (or similar designation) periods, as set forth in the Rate CPE that applies for such Month, including all portions of such periods when Delivered Energy is not provided by the QF.

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2. Options.

OPTION 1

For Option 1 pricing, Alabama Power shall pay to QF a Monthly Energy Payment ("MEP") for each Month of the applicable period, determined as follows:

For each Summer Month, the MEP shall be calculated as follows:

MEP = (Summer Peak Delivered Energy * Summer Peak Energy Price) + (Summer Off-Peak Delivered Energy * Summer Off-Peak Energy Price)

Where:

Summer Peak Delivered Energy = the total amount of Delivered Energy (in kWh) for all Hours of all Summer Peak Periods that occur during the applicable Month.

Summer Peak Energy Price = the applicable energy rate (in $/kWh) for the Summer Peak Period, as set forth in the Rate CPE that applies for such Month.

Summer Off-Peak Delivered Energy = the total amount of Delivered Energy (in kWh) for all Hours of all Summer Off-Peak Periods that occur during the applicable Month.

Summer Off-Peak Energy Price = the applicable energy rate (in $/kWh) for the Summer Off-Peak Period, as set forth in the Rate CPE that applies for such Month.

For each Non-Summer Month, the MEP shall be calculated as follows:

MEP = (Non-Summer Peak Delivered Energy * Non-Summer Peak Energy Price) + (Non-Summer Off-Peak Delivered Energy * Non-Summer Off-Peak Energy Price)

Where:

Non-Summer Peak Delivered Energy = the total amount of Delivered Energy (in kWh) for all Hours of all Non-Summer Peak Periods that occur during the applicable Month.

Non-Summer Peak Energy Price = the applicable energy rate (in $/kWh) for the Non-Summer Peak Period, as set forth in the Rate CPE that applies for such Month.

Non-Summer Off-Peak Delivered Energy = the total amount of Delivered Energy (in kWh) for all Hours of all Non-Summer Off-Peak Periods that occur during the applicable Month.

Non-Summer Off-Peak Energy Price = the applicable energy rate (in $/kWh) for the Non-Summer Off-Peak Period, as set forth in the Rate CPE that applies for such Month.

OPTION 2

For Option 2 pricing, the following shall apply for the applicable period:

For each Month of the applicable period, Alabama Power shall pay to QF an "Estimated Monthly Energy Payment" ("EMEP"), each of which shall be determined in the same manner as the "Monthly Energy Payment" would be determined for such Month under Option 1 of this **Appendix A**. Subsequently, within six (6) Months after the end of the Initial Period and each subsequent Annual Period for which this Option 2 is applicable (or, if applicable, the earlier termination of this Agreement), Alabama Power shall calculate an "Actual Monthly Energy Payment" ("AMEP") for each Month of such previous Initial Period and Annual Period as follows:

For each Summer Month, the AMEP shall be calculated as follows:

AMEP = {Summer Peak Delivered Energy * [Summer Peak Energy Price * (1 + Applicable Loss Factor)] + Summer Off-Peak Delivered Energy * [Summer Off-Peak Energy Price * (1 + Applicable Loss Factor)]}

Where:

Summer Peak Delivered Energy = the total amount of Delivered Energy (in MWh) for all Hours of all Summer Peak Periods that occur during the applicable Month.

Summer Peak Energy Price = the average AIER for all Hours of all Summer Peak Periods that occur during the applicable Month.

Summer Off-Peak Delivered Energy = the total amount of Delivered Energy (in MWh) for all Hours of all Summer Off-Peak Periods that occur during the applicable Month.

Summer Off-Peak Energy Price = the average AIER for all Hours of all Summer Off-Peak Periods that occur during the applicable Month.

Applicable Loss

Factor = a loss factor determined by Alabama Power that is intended, if necessary, to adjust the energy prices above (which are determined at the transmission level voltage) to the same voltage level at the Interconnection Point, and which shall be the applicable loss factor determined from time-to-time for distribution or sub-transmission facilities of Alabama Power; provided that, if the voltage level of the Interconnection Point is equal to or greater than 115kV, then the Applicable Loss Factor shall be equal to zero (0).

For each Non-Summer Month, the AMEP shall be calculated as follows:

AMEP = {Non-Summer Peak Delivered Energy * [Non-Summer Peak Energy Price * (1 + Applicable Loss Factor)] + Non-Summer Off-Peak Delivered Energy * [Non-Summer Off-Peak Energy Price * (1 + Applicable Loss Factor)]}

Where:

Non-Summer Peak Delivered Energy = the total amount of Delivered Energy (in MWh) for all Hours of all Non-Summer Peak Periods that occur during the applicable Month.

Non-Summer Peak Energy Price = the average AIER for all Hours of all Non-Summer Peak Periods that occur during the applicable Month.

Non-Summer Off-Peak Delivered Energy = the total amount of Delivered Energy (in MWh) for all Hours of all Non-Summer Off-Peak Periods that occur during the applicable Month.

Non-Summer Off-Peak Energy Price = the average AIER for all Hours of all Non-Summer Off-Peak Periods that occur during the applicable Month.

Applicable Loss

Factor = a loss factor determined by Alabama Power that is intended, if necessary, to adjust the energy prices above (which are determined at the transmission level voltage) to the same voltage level at the Interconnection Point, and which shall be the applicable loss factor determined from time-to-time for distribution or sub-transmission facilities of Alabama Power; provided that, if the voltage level of the Interconnection Point is equal to or greater than 115kV, then the Applicable Loss Factor shall be equal to zero (0).

After the AMEPs are calculated for the Initial Period or an applicable Annual Period, Alabama Power shall calculate the difference of: (i) the total of the previously paid EMEPs for such period; minus (ii) the total of the calculated AMEPs for such period (such difference being referred to as the "True-up"). In the event that such True-up is positive (i.e., the sum of the previously paid EMEPs for the applicable Initial Period or Annual Period is higher than the sum of AMEPs for such period), then such True-up shall be paid by QF pursuant to Section 8.1.2 of the Agreement or credited to Alabama Power on subsequent Monthly Statements. In the event that such True-up is negative (i.e., the sum of the previously paid EMEPs for the applicable Initial Period or Annual Period is less than the sum of AMEPs for such period), then the absolute value of such True-up shall be paid by Alabama Power to QF. Notwithstanding any other provision of the Agreement, neither Party shall be required to pay interest on any such True-up that is required to be paid by or credited to either Party.

In addition, by no later than five (5) Business Days after QF elects Option 2 for any period pursuant to the applicable notice, QF shall be required to provide to Alabama Power, and thereafter maintain, performance security to secure QF's potential obligation to pay such True-up payment under this Option 2, which security shall at all times be either: (i) a letter of credit issued by a major U.S. commercial bank who has and maintains assets of at least $25 billion and a senior unsecured rating of at least A2 by Moody's and at least A by Standard & Poor's; (ii) cash security provided pursuant to a pledge agreement and control agreement; or (iii) other security acceptable to Alabama Power, in each case of (i), (ii) and (iii) in form and substance acceptable to Alabama Power. The amount of such performance security shall be subject to adjustment by Alabama Power from time to time throughout the Term in order to reflect Alabama Power's current estimate of such True-up payment. If such adjustment results in an increase in the amount of required performance security, within five (5) Business Days of a request from Alabama Power, QF shall provide and maintain additional performance security hereunder so that the total available undrawn amount of performance security then provided to and held by Alabama Power hereunder is equal to such increased amount. Alabama Power shall be entitled to draw upon and/or be paid upon such performance security: (i) for any obligation arising under the Agreement that is not paid when due; (ii) if such performance security is within ninety (90) Days of expiry, expiration or termination; and/or (iii) otherwise in compliance with the terms of such performance security.

APPENDIX B

Automatic Generation Control (AGC) Requirements

QF will, at its expense, install, operate and maintain AGC equipment and systems at the Facility as necessary to enable the Facility to respond to and follow Alabama Power's AGC Setpoint signals. The Facility's AGC equipment and systems must conform to Prudent Industry Practices. QF is responsible for all costs incurred with respect to the Facility that are necessary to make the Facility respond to Alabama Power's AGC Setpoint signals. The Facility must be capable of remaining on AGC at all times and operating in compliance with Alabama Power's AGC Setpoint signals. The Facility's AGC systems will include all necessary connections to the AGC equipment and systems of Alabama Power (to Alabama Power's reasonable satisfaction) to enable Alabama Power to send AGC Setpoint signals to the Facility and measure, record and control energy output from the Facility at all times.

For any AGC Setpoint signals issued below the Potential High Limit, the Facility will reduce energy output to the AGC Setpoint. QF must telemeter the maximum Rate of Change at all times during the operation of the Facility, and the AGC Setpoint signal will include the maximum Rate of Change as a limiting factor for changes in energy output.

QF must telemeter an accurate Potential High Limit (real-time capability) at all times during the operation of the Facility. The Facility must include an operational automatic system for accurately estimating the Potential High Limit ("PHL") that will telemeter estimates of the energy output of the Facility in the absence of an AGC Setpoint signal limiting the energy output of the Facility. Such system will provide PHL estimates every 6 seconds at all times during which the Facility is generating energy, regardless of whether any AGC Setpoint signal from Alabama Power is being received or responded to by the Facility. Such system must produce PHL estimates within an accuracy of at least +/- 5% during at least 95% of all 6-second intervals.

By no later than one (1) year prior to the expected date of initial deliveries of energy from the Facility, QF will submit the detailed design and expected performance of the PHL estimation system to Alabama Power for review and approval, such approval not to be unreasonably withheld. Alabama Power will provide any written comments regarding the proposed PHL estimation system design to QF within thirty (30) Days after receipt of the required submittal from QF. Within sixty (60) Days after receipt of Alabama Power's comments, QF will make corrections and modifications to the proposed PHL estimation system design as necessary to properly address Alabama Power's comments, including correcting deficiencies and remedying issues and satisfying requirements raised in Alabama Power's comments, and will resubmit the revised proposed PHL estimation system design to Alabama Power for review and approval, such approval not to be unreasonably withheld. This process shall be repeated on an iterative basis until QF has developed a PHL estimation system design that is approved by Alabama Power, such approval not to be unreasonably withheld.

By no later than fourteen (14) Days prior to the expected date of initial deliveries of energy from the Facility, QF will provide to Alabama Power a detailed analysis and verification report regarding the completed testing of the performance and accuracy of the PHL estimation system, which demonstrates that the installed PHL estimation system is capable of satisfying the above-referenced performance and accuracy requirements.

QF will enable Alabama Power to have real-time access to all modeling data, meteorological data, inverter data, and any and all other data used in producing the PHL estimates provided to Alabama Power. Alabama Power will have the right to retain, review, and reproduce any and all modeling and analysis used by QF to estimate PHL, with such support from QF as may be reasonably requested by Alabama Power.

The Parties will develop mutually agreed upon (such agreement by a Party not to be unreasonably withheld) methods for validating the estimated PHL and improving the accuracy of the estimated PHL, which methods may include test curtailments or uncurtailments, inverter performance analysis, and other equipment as appropriate for the Facility. A primary source of validation data to monitor the PHL estimation system's accuracy and error will be the recorded PHL estimates compared to the Facility's actual energy output in all 6-seconds periods outside of AGC Curtailment. The Parties will review and monitor PHL estimate errors to identify any bias in the PHL estimates. If any bias is identified in the PHL estimates, the calculation of the amount of AGC Curtailed Energy will be adjusted by Alabama Power to correct for such bias.

The Facility's AGC equipment and systems must be configured to interface with Alabama Power's AGC Remote Terminal Unit ("RTU") to send and receive data for AGC that satisfies the following minimum data requirements.

From Alabama Power to Facility

- Setpoint (MW)

From Facility to Alabama Power

- AGC Status (1/0)
- Operating High Limit (MW)
- High Limit Status (1/0)
- Potential High Limit (MW)
- Low Operating Limit (MW)
- Low Limit Status (1/0)
- Facility Rate of Change Increase (+MW/min)
- Facility Rate of Change Decrease (-MW/min)
- Setpoint Feedback

General Flow of AGC

The Facility will transmit in 6-second intervals all of its points to Alabama Power and Alabama Power will update its points every scan. The Facility will calculate its maximum and minimum MW and will transmit those to Alabama Power every scan. The Facility will

also transmit its AGC rate of change for both increase and decrease and will echo back to Alabama Power what it has received for the AGC Setpoint.

The Facility will operate at full output until an AGC Setpoint is issued below the PHL. Upon receiving this AGC Setpoint, the site will reduce output to meet the AGC Setpoint and continue to follow it any other AGC Setpoints until an AGC Setpoint is issued above the PHL.

Explanation of Points

From Alabama Power to Facility

- Setpoint (MW) – This will be an integer value that will range from 0 to the Operating High Limit. If not in AGC Curtailment, this value will echo the Operating High Limit. If AGC Curtailment is active, the Facility's Energy output will follow the AGC Setpoint.

From Facility to Alabama Power

- AGC Status – This will be an integer value that will range from 0 to 1. A '0' value will indicate the Facility is not in AGC mode and is not capable of responding to Alabama Power's AGC Setpoint signal and a '1' will indicate the Facility is in AGC mode and capable of responding to Alabama Power's AGC Setpoint signal.

- Operating High Limit (MW) – The maximum generating capacity of the Facility adjusted for any equipment limitations or outages that could limit the maximum output.

- High Limit Status – This will be an integer value that will range from 0 to 1. The normal state will be 0. A value of 1 will indicate generation is currently being curtailed.

- Potential High Limit (MW) – The estimated value of the potential instantaneous power output of the Facility as if the Facility is not in a period of AGC Curtailment.

- Operating Low Limit (MW) – During normal operation the Facility will provide a low limit for available AGC Curtailment. The expectation is this would be 0 MW under normal conditions.

- Low Limit Status – This will be an integer value that will range from 0 to 1. The normal state will be 0. A value of 1 will indicate generation is at the Operating Low Limit.

- Facility Rate of Change Increase (+MW/min) – This is the Facility's real-time maximum ramp rate when increasing generating output, accounting for any equipment or operational issues which may affect such ramp rate.

- Facility Rate of Change Decrease (-MW/min) – This is the Facility's real-time maximum ramp rate when decreasing the generating output, accounting for any equipment or operational issues which may affect such ramp rate.

- Setpoint Feedback – This is an echo of the value received from Alabama Power's AGC Setpoint signal.

QF is responsible for operating the Facility and producing and delivering energy in compliance with Alabama Power's AGC Setpoint signals. If Alabama Power's Setpoint signals direct a reduction of QF output during any time other than an occurrence under 18 C.F.R. § 292.304(f)(1) or 18 C.F.R. § 292.307, then QF and Alabama Power shall determine the amount of energy (in kWh) curtailed, and which otherwise would have constituted Delivered Energy, and such energy shall be included in the determination of AMEP under Appendix A as if the energy in fact was Delivered Energy.

Upon the conclusion of each Month, Alabama Power will perform the following calculations for each of the AGC Status Performance Metric and the AGC Setpoint Response Performance Metric to determine whether QF has achieved the AGC Status Performance Requirement and the AGC Setpoint Response Performance Requirement, respectively. If QF fails to achieve the AGC Status Performance Requirement or the AGC Setpoint Response Performance Requirement for (i) any three (3) consecutive Month period or (ii) six (6) Months in any twelve (12) Month period, then QF's failure shall constitute an Event of Default as set forth in the Agreement.

AGC Status Performance Requirement:
The AGC Status Performance Requirement for each Month is that the AGC Status Performance Metric for the Month will equal ninety percent (90%), or greater. The AGC Status Performance Metric for each Month will be calculated as follows:

$$\text{AGC Status Performance Metric} = \left[\sum_{i=1}^{n}\left(\frac{\text{AGC Status}_i}{n}\right)\right]*100$$

Where:
n = total 6-seconds data points in the Month during times of generation to be defined by the Parties consistent with Article 4 of the Agreement

i = 6-seconds data point

AGC Status = 1 if the Facility is in AGC mode and capable of responding to Alabama Power's AGC Setpoint signal, or zero (0) if the Facility is not in AGC mode and is not capable of responding to Alabama Power's AGC Setpoint signal.

AGC Setpoint Response Performance Requirement:
The AGC Setpoint Response Performance Requirement for each Month is a Root Mean Squared Error ("RMSE") less than or equal to 5. The RMSE for each Month will be calculated as follows:

$$\text{Root Mean Squared Error (RMSE)} = \sqrt{\sum_{i=1}^{n} \frac{(\text{AGC Setpoint}_i - \text{Facility Energy Output}_i)^2}{n}}$$

Where:
AGC Setpoint = AGC Setpoint value in MW for the 6-seconds period

Facility Energy Output = the Energy output from the Facility in net kWh at the Point of Interconnection for the 6-seconds period

n = Number of 6-seconds periods in the Month for which there was an AGC Curtailment

i = 6-seconds data point

For the avoidance of doubt, all 6-seconds periods for which there is no AGC Curtailment will be excluded from the calculation of RMSE.

As stated above, if the AGC Setpoint Response Performance Requirement is not met for (i) any three (3) consecutive Months or (ii) six (6) Months in any twelve (12) Month period, then QF's failure to meet the AGC Setpoint Response Performance Requirement shall constitute an Event of Default under this Agreement.

For purposes of this Appendix B, the following terms have the meaning ascribed to them:

"AGC" or **"Automatic Generation Control"** means, generally, the equipment and capability of an electric generation facility to automatically adjust the generation quantity within the applicable balancing authority with the purpose of interchange balancing and means, specifically, the Facility's capability of accepting a set point electronically and the automatic adjustment and regulation of the Facility's energy production to meet the set point.

"**AGC Curtailment**" means a period of time when the energy output from the Facility is reduced below its Potential High Limit in response to an AGC Setpoint that is below the estimated Potential High Limit for the corresponding 6-second intervals.

"**AGC Setpoint**" means a value (MW) that will range from 0 to the Operating High Limit.

"**Potential High Limit**" or **"PHL"** means the estimated value of the potential instantaneous power output (MW) of the Facility as if the Facility is not in a period of AGC Curtailment.

APPENDIX C

MONTHLY ADMINISTRATION CHARGE

QF shall pay to Alabama Power a Monthly Administration Charge, in dollars ($) per Month, for: (i) all costs and expenses incurred by Alabama Power during such Month in connection with Alabama Power's administration of this Agreement; (ii) all costs and expenses incurred by Alabama Power during such Month in connection with implementing the applicable Option 1 or Option 2 under **Appendix A**, including preparation of the Monthly Statement and calculation of the amounts required to be paid by Alabama Power for each Month, the costs and expenses associated with which will vary depending on the option elected by QF; (iii) any Taxes, assessments or other impositions for which Alabama Power may be liable as a result of purchase of energy from QF or any other activity undertaken pursuant to this Agreement; (iv) any amounts owed to Alabama Power with respect to metering as set forth in Article 5, or (v) all amounts which are otherwise chargeable to or to be paid by QF under a provision of this Agreement. The Monthly Administration Charge for the Initial Period and any subsequent Annual Period shall not exceed $1,000.

For the purposes of this Agreement, the Monthly Administration Charge shall be $_____.

APPENDIX D

GENERAL SERVICES ADMINISTRATION FLOW-DOWN PROVISIONS

Alabama Power is a government contractor under an Areawide Public Utilities Contract with the General Services Administration of the United States Government, and as such, is required to conduct business with entities in compliance with the regulations contained herein. Accordingly, QF agrees that its performance and the performance of its contractors, subcontractors, vendors and suppliers under this Agreement shall comply with the following Federal Acquisition Regulations which shall be incorporated herein by reference as if set forth herein in full text:

(i)	52.203-3	Gratuities (APR 1984);
(ii)	52.203-6	Restrictions on Subcontractor Sales to the Government (SEPT 2006);
(iii)	52.203-7	Anti-Kickback Procedures (MAY 2014);
(iv)	52.219-8	Utilization of Small Business Concerns (OCT 2014);
(v)	52.219-9	Small Business Subcontracting Plan (OCT 2014)
(vi)	52.222-21	Prohibition of Segregated Facilities (FEB 1999);
(vii)	52.222-26	Equal Opportunity (MAR 2007);
(viii)	52.222-37	Employment Reports on Veterans (JUL 2014);
(ix)	52.222-40	Notification of Employee Rights under the National Labor Relations Act (DEC 2010);
(x)	52.222-50	Combating Trafficking in Persons (FEB 2009);
(xi)	52.222-54	Employment Eligibility Verification (AUG 2013); and
(xii)	52.222-13	Restrictions on Certain Foreign Purchases (JUN 2008)

Upon written request, Alabama Power will provide the full text of any of the above sections incorporated herein by reference. QF warrants and represents that neither it nor any of its Affiliates, agents, contractors or subcontractors is debarred, suspended or proposed for debarment as a contractor or subcontractor to any department, agency or other division of the United States Government. In the event that QF or any of its Affiliates, agents, contractors or subcontractors become debarred, suspended or proposed for debarment during the term of this Agreement, QF will immediately notify Alabama Power verbally and in writing.

APPENDIX E

TRANSFER OF INFORMATION ACKNOWLEDGEMENT

_____ ("QF") and Alabama Power Company ("Alabama Power") have entered into that certain Contract for the Purchase of Energy from a Qualifying Facility ("Agreement") dated as of _____. The Agreement contemplates that certain information that could be considered to be non-public information that potentially has implications under the Federal Energy Regulatory Commission's Standards of Conduct will be provided by QF to Alabama Power and/or Southern Company Services, Inc., as agent for the transmission owning subsidiaries of The Southern Company (Alabama Power, Georgia Power Company, Gulf Power Company, and Mississippi Power Company). QF acknowledges that such information is being provided for the purposes of operational implementation and administration of the Agreement (which includes conducting Alabama Power's system operations and dispatch functions) and will be utilized by individuals in both Transmission Provider and Energy Affiliate/wholesale marketing unit functions under the Standards of Conduct.

The individuals within The Southern Company organizations indicated above may only use the information for the purpose of implementing and administering the Agreement (including conducting Alabama Power's system operations and dispatch functions). QF understands that such information will not be used or disseminated in any manner contrary to the confidentiality provision(s) in the Agreement or in violation of the Federal Energy Regulatory Commission's Standards of Conduct. QF's provision of this information has not been and is not being provided in exchange for any preferential treatment, either operational or rate-related, by Southern Company Services, Inc. or by any of the transmission-owning subsidiaries of The Southern Company. QF also acknowledges that QF is not providing the information under duress or coercion. In accordance with requirements of the Federal Energy Regulatory Commission, Southern Company Services, Inc. may post on OASIS the fact of QF's consent to the provision of the information specified above to certain employees that may be employed within organizational units deemed to be Energy Affiliates/wholesale marketing units under the Standards of Conduct.

Acknowledged on behalf of QF:

By:_____
Name: _____
Title: _____
Date: _____

APPENDIX F

CERTIFICATION OF WHETHER THE AGREEMENT WILL REQUIRE DECONSOLIDATION BY QF WITH RESPECT TO VARIABLE INTEREST ENTITY

AGREEMENT – Contract for the Purchase of Energy from a Qualifying Facility dated _____ ___, 20__ between Alabama Power Company ("Alabama Power"), and _____ ("QF") (the "Agreement"). Capitalized terms used herein shall have the meaning assigned in the Agreement.

The undersigned individual, being the Chief Financial Officer of QF and having responsibilities for financial accounting matters associated with the Agreement, hereby certifies that [at the time of the execution of the Agreement][for the calendar year ending December 31, _____], the Agreement WILL (_____)/WILL NOT (_____) require the QF, [at the time of the execution of the Agreement] [at any time over the calendar year covered by this certification], to deconsolidate on its books and records any assets, liabilities, cash flow, profits or losses of QF as a result of the Alabama Power being determined to be the primary beneficiary. My determination of the most likely accounting treatment of this transaction results from my personal consideration after necessary discussions with relevant officers of Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 810 Consolidation (formerly FASB Interpretation Number 46(R), Consolidation of Variable Interest Entities) (FASB ASC Topic 810) as modified from time to time, and the following factual matters:

QF's accounting policies, procedures, and internal controls are sufficient to provide us with an appropriate basis for confirming the information contained herein.

_____Yes
_____No (please explain)

QF qualifies for one of the scope exceptions listed FASB ASC Topic 810-10-15-12 and 17.

_____Yes (please explain)
_____No (please explain)

QF is financed with equity equal to or greater than ten percent (10%) of the QF's total assets (FASB ASC Topic 810-10-25-45).

_____Yes
_____No

The Agreement revenues correlate with fluctuations in QF's operating cash flows (operating expenses).

_____Yes
_____No

The Agreement reduces variability in the fair value of QF's assets, for example by absorbing fuel or electricity price risk.

_____Yes
_____No

The Agreement term is for greater than 50% of the remaining economic life of the Facility.

_____Yes
_____No

The Agreement is for substantially all of the proposed QF's productive output.

_____Yes
_____No

Alabama Power and/or its affiliates participated significantly in the design or redesign of the QF's Facility.

_____Yes
_____No

The percentage that the Facility's fair value represents, of the fair value of the proposed QF's total assets, is approximately

_____%

The Facility is essentially the only source of payment for specified liabilities or specified other interest (there is specific debt associated with the Facility).

_____Yes
_____No

The above information (and any attachments) has been completed in full and agrees with our records as of the date hereof.

[INSERT NAME OF QF]

By: _____
Name: _____
Title: _____

Date: _____

RATE CPE (CONTRACT FOR PURCHASED ENERGY) -- ATTACHMENT A

CONTRACT FOR THE PURCHASE OF ENERGY FROM A QUALIFYING FACILITY

BETWEEN

_____

AND

ALABAMA POWER COMPANY

Dated as of _____

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CONTRACT FOR THE PURCHASE OF ENERGY
FROM A QUALIFYING FACILITY

This Contract for the Purchase of Energy from a Qualifying Facility ("Agreement") is made and entered into as of the _____ day of _____, 20___ ("Effective Date") in accordance with Rate CPE (as defined herein), by and between **ALABAMA POWER COMPANY**, a corporation organized and existing under the laws of the State of Alabama ("Alabama Power"), and _____, a _____ organized and existing under the laws of the State of _____ ("QF").

WITNESSETH:

WHEREAS, [QF intends to construct, own, operate and maintain a _____ facility for the generation of electric power in _____ County, Alabama] [OR] [QF presently owns and operates a _____ facility for the generation of electric power in _____ County, Alabama];

WHEREAS, QF will certify, or has certified, and will operate such facility as a Qualifying Facility and, pursuant to the provisions of PURPA, QF desires to sell all of the electric energy produced by such facility to Alabama Power; and

WHEREAS, the Parties desire to set forth the terms and conditions upon which such sale of electric energy shall be conducted between the Parties.

NOW, **THEREFORE**, in consideration of the premises and of the mutual covenants set forth herein and other good and valuable consideration, the receipt, sufficiency and adequacy of which are hereby acknowledged, Alabama Power and QF, each intending to be legally bound, hereby agree as follows:

ARTICLE 1

DEFINITIONS AND INTERPRETATION

1.1 Definitions. All capitalized terms used herein and not otherwise defined, whether singular or plural, shall have the respective meanings set forth below.

"**AC**" means alternating current.
"**Adjustment Period**" has the meaning set forth in Section 5.4.
"**Affiliate**" means, for any specific Person, any other Person directly or indirectly controlling or controlled by or under direct or indirect common control with such specified Person. For purposes of this definition, "control" when used with respect to any Person means the power to direct the management and policies of such Person, directly or indirectly, whether through the ownership of voting securities, by contract or otherwise; and the terms "controlling" and "controlled" have meanings correlative to the foregoing.
"**Agreement**" has the meaning set forth in the first paragraph hereof.
"**Alabama Power**" has the meaning set forth in the first paragraph of this Agreement, and its permitted successors and assigns.

"**Annual Period**" means each period during which a given revision to Rate CPE is effective, each of which shall commence upon the first Day of the Month for which a given revised Rate CPE is made effective by the APSC and end on the last Day of the Month for which such revised Rate CPE is effective.
"**APSC**" means the Alabama Public Service Commission, its staff, or any Governmental Authority succeeding to the powers and functions thereof.
"**Business Day**" means any Day excluding Saturday and Sunday and excluding any Day on which banking institutions in Birmingham, Alabama are closed because of a federal holiday.
"**Central Prevailing Time**" or "**CPT**" means the local time at any point in Birmingham, Alabama.
"**Commercial Operation**" has the meaning set forth in the Interconnection Agreement.
"**Confidential Information**" has the meaning set forth in Section 13.1.
"**Collateral Assignee**" means third party lenders or other Persons (including cash equity and tax equity providers) providing construction financing, long-term financing, refinancing or other credit or financial support in connection with the development, construction or operation of the Facility.
"**Consents**" means all approvals, consents, permits, licenses, decrees, orders, judgments, certificates, zoning and other variances, waivers, exceptions, exemptions, franchises, rulings, authorizations or similar orders from, or filings or registrations with or notices to, any Governmental Authority that are required to own, develop, site, construct, operate, use, test, modify, and/or maintain the Facility and the Site, and for QF to perform its obligations under this Agreement.
"**Day**" means a calendar day.
"**Delivered Energy**" means, for any Hour, the amount of energy (expressed in kWh or MWh) that is produced by the Facility and delivered by QF to Alabama Power at the Interconnection Point pursuant to this Agreement; provided that Delivered Energy shall not include: (i) Electrical Losses; and (ii) energy that Alabama Power is not required to receive or purchase under Sections 6.1.2, 6.1.3 and 6.1.4.
"**Effective Date**" has the meaning set forth in the first paragraph of this Agreement.
"**Electric System**" means, collectively, the entire network of electric generating, transmission and distribution facilities, equipment and other devices owned (in whole or in part) or controlled by Alabama Power or its Affiliates, or to which Alabama Power or its Affiliates has the right to use, for the purposes of generating, transmitting, distributing, and receiving electric energy.
"**Electrical Losses**" means all electrical losses associated with the delivery of energy produced by the Facility to the Interconnection Point, including all electrical losses over distribution and transmission facilities prior to the Interconnection Point and those related to transformation prior to the Interconnection Point.
"**Electrical Products**" means any products produced by or related to the Facility, other than the electrical energy produced by the Facility, including electric capacity, spinning reserves, operating reserves, balancing energy, regulation service, reactive power and voltage control and other ancillary service products.
"**Environmental Attributes**" means, whether existing as of the Effective Date or in the future, any fuel-related, emissions-related, air quality-related or other environmental-related aspects, claims, characteristics, benefits, credits, reductions, offsets, savings,

allowances, efficiencies, certificates, tags, attributes or similar products or rights (including all of those relating to greenhouse gases and all green certificates, green tags, renewable certificates and renewable energy credits) ("Attributes"), howsoever entitled, whether known or unknown, whether or not such Attributes have been certified or verified under any renewable energy standards or criteria or otherwise, and whether or not such Attributes could qualify or do qualify for application toward compliance with any public, private, local, state, federal and/or international renewable energy related standard, program, law, policy, or contract, that: (i) arise or result from the generation of electric, thermal or other energy by the Facility; (ii) are associated with fuel that is used to produce electric, thermal or other energy at the Facility (including any fuel that may serve a dual purpose of contributing both to energy production and another industrial process), including the procurement, collection or aggregation of such fuel; (iv) arise or result from the avoidance or reduction of the emission of any gas, chemical or other substance to the air, soil or water that is attributable to the generation of electric, thermal or other energy by the Facility or the use of a particular fuel by the Facility to generate electric, thermal or other energy; (vi) arise or result from the recycling, recovery or reuse of any wastes, products, co-products, byproducts or similar materials associated with the generation of electric, thermal or other energy by the Facility; or (vii) arise or result from the avoidance of water use that is associated with the generation of electric, thermal or other energy at the Facility. Environmental Attributes shall not include any tax credit (including federal investment tax credits) derived from the construction or ownership of the Facility.

"**Event of Default**" has the meaning set forth in Section 10.1 for QF and Section 10.2 for Alabama Power.

"**Facility**" means the [insert applicable technology] electric generation facility and all related equipment and structures associated with such generation facility [to be or being constructed by QF] [OR] [presently owned and operated by QF] in [City], [State], with a nameplate generating output equal to ___ kW. The Facility shall include all equipment and facilities installed at the Site on QF's side of the Point of Change in Ownership that are necessary or used for the production, control, delivery or monitoring of electric energy.

"**FERC**" means the Federal Energy Regulatory Commission or any Governmental Authority succeeding to the powers and functions thereof.

"**Force Majeure Event**" has the meaning set forth in Section 12.1.

"**Governmental Authority**" means any local, state, regional or federal administrative, legal, judicial or executive agency, court, commission, department or other such entity.

"**Hour**" means one (1) of the twenty-four (24) clock-hours of a Day.

"**Initial Delivery Criteria**" means the fulfillment of all of the following criteria to Alabama Power's reasonable satisfaction:

(i) the Facility has been interconnected to the Electric System pursuant to the Interconnection Agreement, the Interconnection Agreement is in full force and effect, and QF and the Facility are in compliance with the Interconnection Agreement; and

(ii) QF shall have demonstrated that it has obtained all authorizations necessary to deliver energy from the Facility under this Agreement to the Electric System.

"**Initial Delivery Date**" means the later of: (i) _____ [Note: insert a date agreed to by Alabama Power and QF]; (ii) the Day on which the Facility achieves Commercial Operation; or (iii) the Day on which all Initial Delivery Criteria are satisfied.
"**Initial Period**" means the period of time from the Initial Delivery Date through the next occurring date on which a revision to Rate CPE is made effective by the APSC.
"**Interconnection Agreement**" means an agreement by and between QF and the Interconnection Provider providing QF the right to interconnect the Facility to the Electric System and containing terms and conditions governing the interconnection and parallel operation of the Facility with such system.
"**Interconnection Facilities and Upgrades**" means those facilities, equipment and upgrades (including any and all transmission system network upgrades) that are located on Interconnection Provider's side of the Point of Change in Ownership and that are required in order to interconnect the Facility at the Interconnection Point, which would not have been required but for the interconnection of the Facility to the Electric System (including all breakers and metering equipment needed for interconnection), as such facilities, equipment and upgrades are set forth and identified in the Interconnection Agreement.
"**Interconnection Point**" means the physical point at which the Facility is interconnected to the Electric System, as defined in the Interconnection Agreement.
"**Interconnection Provider**" means Alabama Power or other entity providing interconnection service for the Facility pursuant to the Interconnection Agreement.
"**Interest Rate**" means the prime rate of interest as published from time to time in the *Wall Street Journal* or comparable successor publication.
"**kW**" means kilowatts, AC.
"**kWh**" means kilowatt hours, AC.
"**Legal Requirement**" means any act; statute; law; requirement; ordinance; order; ruling or rule; regulation; standards and/or criteria contained in any permit, license or other approval; legislative or administrative action; or a decree, judgment or order of any Governmental Authority imposed, whether in effect as of the Effective Date or at any time in the future.
"**Month**" means a calendar Month, commencing at the beginning of the first Day of such calendar Month.
"**Monthly**" has a meaning correlative to that of Month.
"**Monthly Administration Charge**" means, for a particular Month of the Term, the Monthly amount required to be paid by QF to Alabama Power, pursuant to **Appendix C**.
"**Monthly Statement**" has the meaning set forth in Section 8.1.1.
"**MW**" means megawatts, AC.
"**MWh**" means megawatt hours, AC.
"**NERC**" means the North American Electric Reliability Corporation, including any successor thereto and subdivisions thereof.
"**Party**" **or** "**Parties**" means either Alabama Power or QF or both.
"**Person**" means any person, corporation, limited liability company, general partnership, limited partnership, proprietorship, other business organization, trust, union, association or Governmental Authority.
"**Point of Change in Ownership**" means the point where the facilities to be owned by QF will connect to the facilities to be owned by Interconnection Provider.

"**Prudent Industry Practices**" means, at a particular time, any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry prior to such time, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired results at the lowest cost consistent with good and acceptable engineering and business practices, reliability, safety and expedition. Prudent Industry Practices is not intended to be limited to the optimum practice, method or act to the exclusion of all others, but rather to be a spectrum of possible practices, methods or acts expected to accomplish the desired results, having due regard for, among other things, manufacturers' warranties, any applicable inspection authorities, and the requirements of Governmental Authorities of competent jurisdiction and the requirements of this Agreement.

"**PURPA**" means the Public Utility Regulatory Policies Act of 1978, including the implementing regulations of FERC and implementing regulations, practices or procedures of the APSC, as each may be amended or modified from time to time.

"**QF**" has the meaning set forth in the first paragraph of this Agreement, and its permitted successors and assigns.

"**Qualifying Facility**" has the meaning set forth in Section 292.101(b)(1) of the regulations promulgated under PURPA, 18 C.F.R. Part 292 (including any successor(s) provisions).

"**Rate CPE**" means "Rate CPE – Contract for Purchased Energy" or any successor in function applicable to the rates to be paid for energy delivered to Alabama Power by Qualifying Facilities of a size and kind more fully described in Rate CPE, as filed by Alabama Power with the APSC and as may be modified from time to time.

"**RGB Rules**" means the "Special Rules Governing the Application of Rate Rider RGB" of Alabama Power, or any successor in function, as filed by Alabama Power with the APSC and as may be modified from time to time.

"**Rate Rider RGB**" means "Rate Rider RGB, Supplementary, Back-up, or Maintenance Power", or any successor in function, as filed by Alabama Power with the APSC and as may be modified from time to time.

"**Representatives**" means, when used with respect to a Party, collectively or individually (as the context might indicate), such Party, its Affiliates and permitted successors and assigns, and the directors, officers, representatives, agents, contractors, subcontractors, and employees of each of them.

"**SERC**" means the SERC Reliability Corporation, including any successor thereto and subdivisions thereof.

"**Site**" means the land on which the Facility is located.

"**Station Service**" has the meaning set forth in Section 4.4.

"**Tax**" means any or all ad valorem, property, occupational, severance, emissions, carbon generation, first use, conservation, energy, transmission, utility, gross receipts, privilege, sales, use, excise and other taxes, fees, assessments, licenses, taxes based on net income or net worth, and any other charges imposed by a Governmental Authority, together with any interest and penalties thereon.

"**Term**" has the meaning set forth in Section 3.2, as may be extended pursuant to Section 3.2.

1.2 Interpretation. Whenever the term "including" is used herein in connection with a listing of items included within a prior reference, such listing shall be interpreted to be illustrative only, and shall not be interpreted as a limitation on or exclusive listing of the items included within the prior reference. Any reference in this Agreement to "Section," "Article," or "Appendix," shall be references to this Agreement unless otherwise stated, and all such Appendices shall be incorporated in this Agreement by reference. Unless specified otherwise, a reference to a given agreement or instrument, and all schedules, exhibits, appendices and attachments thereto, shall be a reference to that agreement or instrument as modified, amended, supplemented and restated, and in effect from time to time. Unless otherwise stated, any reference in this Agreement to any entity shall include its permitted successors and assigns, and in the case of any Governmental Authority, any entity succeeding to its functions and capacities.

ARTICLE 2

DEVELOPMENT STANDARDS FOR NEW FACILITIES

2.1 Standard for Development. QF shall design, engineer, construct, test, commission the Facility in accordance with Prudent Industry Practices and applicable Legal Requirements.

2.2 Status of the Facility. No later than the end of each Month prior to the Initial Delivery Date, QF shall deliver a written report to Alabama Power describing the progress of development and construction of the Facility, including the estimated date that mechanical completion will occur and the estimated date that the Facility will initially synchronize to the Electric System.

ARTICLE 3

INITIAL DELIVERY DATE; TERM AND TERMINATION; APSC APPROVAL

3.1 Initial Delivery Date; Failure to Achieve Initial Delivery Date.

3.1.1 QF shall notify Alabama Power of the estimated Initial Delivery Date at least forty-five (45) Days prior to such date or such shorter period as the Parties may agree.

3.1.2 In the event that QF believes that all of the Initial Delivery Criteria have been achieved, QF shall provide Alabama Power notice thereof.

3.1.3 After the Initial Delivery Criteria have been satisfied, QF shall provide Alabama Power with at least fifteen (15) Days prior notice of the actual Initial Delivery Date or such shorter period as the Parties may agree.

3.1.4 In the event that QF fails to reach the Initial Delivery Date within five (5) years of the Effective Date~~does not occur by _____~~, then this Agreement shall terminate without further action by the Parties. Upon such termination, neither Party shall have any further obligation under this Agreement, except for obligations and

liabilities that survive termination as provided in this Agreement or which accrue prior to or at termination.

3.2 Term. This Agreement shall become effective as of the Effective Date. The "Term" of this Agreement shall begin on the Initial Delivery Date and shall continue until the end of the Initial Period; provided that QF shall be entitled to terminate the Agreement by providing notice to Alabama Power as soon as reasonably practicable prior to the end of said Initial Period, which is the March 31 following the Initial Delivery Date, unless otherwise changed by order of the APSC. Thereafter, this Agreement shall automatically renew for additional Annual Periods; provided that QF shall be entitled to terminate the Agreement by providing notice to Alabama Power no later than sixty (60) Days prior to the end of the then-existing Term, but no earlier than one hundred twenty (120) Days prior to the end of such then-existing Term.

3.3 Survival. All provisions of this Agreement that expressly or by implication come into or continue in force and effect following the expiration or termination of this Agreement shall remain in effect and be enforceable following such expiration or termination, including all provisions that must survive in order to give force and effect to the rights and obligations of the Parties under this Agreement.

3.4 Adherence to Rate CPE. This Agreement is a Standard Contract (Attachment A) under Rate CPE, and is subject to review by the Staff of the APSC to ensure conformity with the terms and conditions of the Standard Contract (Attachment A) on file with and approved by the APSC. Following the Effective Date, if prior to the commencement of a Term, a new version of the Standard Contract (Attachment A) is filed with and approved by the APSC, the terms and conditions of that version of the Standard Contract (Attachment A) shall be incorporated by reference and, in the event of a conflict with this Agreement, control the rights and obligations of the Parties, subject to the right of QF to any pricing for capacity established pursuant to a legally enforceable obligation consistent with 18 C.F.R. § 292.304(d).

ARTICLE 4

OPERATIONAL CONSIDERATIONS

4.1 General Standards. In furtherance of the safety and reliability of the Electric System, QF shall at its sole cost and expense manage, control, construct, operate and maintain the Facility (or cause others to manage, control, construct, operate and maintain the Facility) in a manner consistent with Prudent Industry Practices, applicable Legal Requirements, and applicable reliability standards and operating policies of NERC and SERC. QF shall also diligently seek, obtain, maintain, comply with and, as necessary, renew and modify from time to time, any and all Consents. QF shall designate one or more representatives that Company may contact regarding any operational matter relating to the Facility and provide Company with contact information (including telephone number and email address) for such representatives.

4.2 Scheduled Outages. QF shall submit to Alabama Power, before October 1 of each calendar year, a schedule of planned Facility outages during the next calendar year, as well as any updates to such schedule as they become known.

4.3 Unplanned Outages. In addition to scheduled outages under Section 4.2, QF shall use commercially reasonable efforts to immediately notify Alabama Power of any event or condition that will result in any portion of the Facility not being able to produce energy. Such notices shall contain information describing such event or condition, the beginning date and time of such event or condition, the expected end date and time of such event or condition, the amount of Delivered Energy that QF expects will be provided during such event or condition, and any other information reasonably requested by Alabama Power. QF shall provide Alabama Power with such notice by any reasonable means required by Alabama Power, including by telephone or electronic mail.

4.4 Station Service. If QF is located in the service territory of Alabama Power, QF shall be required to enter into a separate agreement with Alabama Power for the supply of electrical energy necessary to serve the electrical requirements of the Facility ("Station Service") pursuant to the "Supplementary Power" section of Rate Rider RGB and the RGB Rules; provided that QF shall not be required to procure firm back-up power from Alabama Power.

4.5 Availability Forecasts. By no later than 5:00 a.m. CPT of each Day, QF shall provide, in a format reasonably acceptable to Alabama Power, a non-binding forecast of energy to be delivered under this Agreement for the next Day and each of the next seven (7) Days. Each such notice shall clearly identify, for each Hour, QF's forecast of all amounts of available energy to be delivered pursuant to this Agreement. In the event that QF foresees that actual deliveries under this Agreement for any Day will be materially different than a forecast previously provided for such Day, QF shall, as soon as reasonably possible, provide notice to Alabama Power of such change and an updated forecast.

4.6 Weather Data. At Alabama Power's direction, QF shall make available, in a form reasonably acceptable to Alabama Power, all data from any weather monitoring portals and/or weather stations that QF elects to install at the Site.

ARTICLE 5

INTERCONNECTION AND METERING.

5.1 Interconnection.

5.1.1 QF shall maintain and use diligent efforts to pursue interconnection of the Facility to the Electric System in accordance with the interconnection process of the Interconnection Provider, including the timely execution and submission of all required study agreements, fees, deposits and other charges. QF shall be responsible for all costs and expenses associated with all studies, fees, deposits and other charges in connection with such interconnection request.

5.1.2 The Interconnection Agreement shall contain terms, conditions and requirements pursuant to the interconnection policies and requirements of the Interconnection Provider and its Affiliates. Pursuant to the Interconnection Agreement, QF shall be responsible for all costs and expenses that are associated with the ownership, design, engineering, procurement, construction, installation, operation, maintenance, repair and replacement of all Interconnection Facilities and Upgrades.

5.1.3 The Interconnection Agreement shall be maintained throughout the Term of this Agreement. QF shall promptly provide a copy of, and any amendments to, such Interconnection Agreement to Alabama Power in accordance with the notice provisions of Section 13.12. QF is responsible for determining all transmission and/or distribution-related rules, practices and policies with which it must comply.

5.1.4 If the Interconnection Agreement concerns an interconnection with the Company's transmission facilities and requires QF to be capable of receiving and responding to dispatch setpoints in real time, then QF shall be subject to and comply with the provisions of **Appendix B**.

5.2 Metering.

5.2.1 At QF's sole cost and expense, Alabama Power or its Affiliate may design, locate, construct, install, own, operate and maintain meters and such other facilities, equipment and devices as Alabama Power deems necessary or appropriate in order to determine the amount of electric energy delivered by QF to Alabama Power under this Agreement, including for purposes of calculating the payments under **Appendix A**, or to determine the amount of electric energy delivered by Alabama Power to QF, all in accordance with Prudent Industry Practices.

5.2.2 All meters and other such facilities, equipment and devices installed by Alabama Power shall be and remain the property of Alabama Power.

5.3 Inspection and Testing of Meters. Alabama Power or its Affiliate shall have the right to inspect and test all meters installed by Alabama Power or its Affiliate in order to measure the output of the Facility at such times as Alabama Power deems necessary or appropriate. Upon reasonable written request to Alabama Power, QF may request inspection or testing of any such meters. QF shall be responsible for, and shall reimburse Alabama Power for, all costs and expenses incurred by or on behalf of Alabama Power or its Affiliate in connection with such inspections or tests requested by QF unless such inspection or test reveals that such meters are inaccurate by more than two percent (2%) from the measurement made by the reference meter used in the test, in which event Alabama Power shall bear all costs of such testing. Alabama Power shall give reasonable written notice to QF of the time and place when any such meter is to be inspected or tested, and QF may have a representative present at such test or inspection.

5.4 Inaccuracies. If any seal securing the metering is found broken, if the metering fails to register, or if the measurement made by a metering device is found upon testing to vary by more than the allowable margin of metering error (as reflected in the

rules and regulations of the APSC), based upon the measurement made by the reference meter used in the test, an adjustment shall be made correcting all measurements of electric energy made by the metering during: (i) the actual period when inaccurate measurements were made by the metering, if that period can be determined to the mutual satisfaction of the Parties; or (ii) if such actual period cannot be determined to the mutual satisfaction of the Parties, the second half of the period from the date of the last test of the metering to the date such failure is discovered or such test is made ("Adjustment Period"). If the Parties are unable to agree on the amount of the adjustment to be applied to the Adjustment Period, the amount of the adjustment shall be determined (a) by correcting the error if the percentage of error is ascertainable by calibration, tests or mathematical calculation, or (b) if not so ascertainable, by estimating on the basis of deliveries under similar conditions during the period since the last test. Within thirty (30) Days after the determination of the amount of any adjustment, Alabama Power shall either (a) pay QF any additional amounts then due for deliveries of electric energy during the Adjustment Period in accordance with **Appendix A**, or (b) be entitled to a credit against any subsequent payments for electric energy, as appropriate.

5.5 Electrical Loss Factor Adjustment to Interconnection Point. In the event, and to the extent, that the meters used to determine the output of the Facility are not measuring deliveries of electric energy physically at the Interconnection Point, the metered amount of electric energy shall be adjusted to or from the Interconnection Point (as applicable) by a loss factor determined by Alabama Power, in accordance with Prudent Industry Practices. Alabama Power shall provide QF with a copy of any study or analysis prepared by Alabama Power in determining such loss factor.

ARTICLE 6

PURCHASE AND SALE OF ENERGY

6.1 Sale and Purchase of Energy.

6.1.1 Commencing on the Initial Delivery Date and thereafter for the Term, subject to the terms and conditions of this Agreement, QF shall sell and deliver to Alabama Power, and Alabama Power shall purchase and receive from QF, all Delivered Energy, with Alabama Power's payment obligation determined pursuant to Section 8.1 and **Appendix A**.

6.1.2 Alabama Power shall not be required to receive, purchase or compensate QF for energy not delivered or produced by the Facility as a result of: (i) the separation of the Facility from the Electric System pursuant to the RGB Rules; (ii) a Force Majeure Event affecting the facilities or equipment of either Party; or (iii) the interruption of deliveries or disconnection of the Facility pursuant to the Interconnection Agreement.

6.1.3 Notwithstanding any other provision of this Agreement, if payment for Delivered Energy is being determined pursuant to Monthly Payment Calculation Option 2, Alabama Power shall not be required to receive energy, or purchase or compensate QF for energy, during any period during which, due to operational

circumstances, Alabama Power reasonably expects that a purchase from QF will result in costs greater than those which Alabama Power would incur if it did not make such purchase, but instead generated an equivalent amount of energy itself, and Alabama Power (i) has provided QF at least 10 (ten) minutes prior notice via electronic (e.g., email, text) or telephonic communication, or (ii) has signaled QF to reduce output through the use of AGC equipment, as provided in **Appendix B**.

6.1.4 Notwithstanding any other provision of this Agreement, Alabama Power shall not be required to receive energy, or purchase or compensate QF for energy, during any period of system emergency, if Alabama Power reasonably expects that a purchase from QF will contribute to such emergency.

6.2 Exclusivity. From the Effective Date and throughout the Term, Alabama Power shall have exclusive rights to the entire electrical output of the Facility, and QF shall not sell, supply or otherwise provide electrical energy from the Facility to any other Person(s).

6.3 Electrical Products. The payments under this Agreement constitute full and complete compensation for all energy provided to Alabama Power, as well as for Electrical Products that are inherently embedded in or connected with such energy. Alabama Power shall not be required to accept or pay for any Electrical Products, if any, produced by or related to the Facility, and QF shall not seek separate or additional compensation from Alabama Power for any such Electrical Products under this Agreement or any other agreement, tariff or rate schedule or filing with any Governmental Authority.

6.4 Point of Delivery; Title. QF shall deliver energy from the Facility to Alabama Power at the Interconnection Point. Title to such electric energy shall pass from QF to Alabama Power at the Interconnection Point. QF covenants that it shall have good and marketable title to all energy delivered to Alabama Power at the Interconnection Point and that it has the right to, and will, sell and deliver such energy to Alabama Power free and clear of all liens and encumbrances.

ARTICLE 7

REGULATORY AND COMPLIANCE

7.1 Incorporation of RGB Rules. The RGB Rules are hereby incorporated into and made a part of this Agreement by reference, and QF shall be deemed to be a "Customer" as such term is used under such RGB Rules. The operation of the Facility and the sale and delivery of energy under this Agreement shall be subject to the terms and conditions of the RGB Rules, including those provisions of the RGB Rules that permit Alabama Power to separate the Facility from the Electric System under a condition that is likely to result in imminent significant disruption of service to customers or is imminently likely to endanger life or property.

7.2 Qualifying Facility Status. Throughout the Term of this Agreement, QF shall cause the Facility to be a Qualifying Facility and shall obtain, and maintain, certification of the Facility as a Qualifying Facility pursuant to the requirements of FERC and other applicable Governmental Authorities. If at any time the Facility ceases to be a Qualifying Facility for any reason, then Alabama Power shall be entitled to immediately terminate this Agreement in its sole and absolute discretion. If Alabama Power so terminates this Agreement, Alabama Power shall have no further obligation to purchase or receive, and QF shall have no further obligation to sell or provide, any energy under this Agreement.

7.3 Termination of PURPA Purchase Obligation. Notwithstanding anything to the contrary in this Agreement, in the event that Alabama Power is no longer required under PURPA to purchase the electric energy produced by the Facility (whether due to the repeal or modification of PURPA or by specific reference to QF, this Agreement or by general order or issuance referencing purchases of energy from Qualifying Facilities under PURPA or other reasons), then Alabama Power shall be entitled to terminate this Agreement, upon fifteen (15) days' written notice to QF, in its sole and absolute discretion. If Alabama Power so terminates this Agreement, Alabama Power shall have no further obligation to purchase or receive, and QF shall have no further obligation to sell or provide, any energy under this Agreement.

7.4 Change of Rates. In the event that FERC or another Governmental Authority takes any action, including imposition of a rule, regulation, order or other requirement, which causes (including by specific reference to this Agreement or by general order or issuance referencing purchases of energy from Qualifying Facilities under PURPA) a change in the rates or amounts that Alabama Power is required to pay to QF or to Qualifying Facilities in general, then upon 30 days' written notice, QF agrees to be bound by such change and agrees to adjust the energy rates and amounts charged under this Agreement to the rates and amounts required to be paid by Alabama Power as a result of such action.

7.5 Change In Law. Notwithstanding any provision in this Agreement, in the event that there are changes to Legal Requirements or any interpretation thereof, including changes to laws or regulations regulating or imposing a Tax, fee or other charge on discharges, emissions or disposals from the Facility, which cause QF to incur additional costs or expense associated with the Facility or in performing under this Agreement, QF agrees to be responsible for all of such costs and expenses and acknowledges that the payments made by Alabama Power to QF pursuant to this Agreement shall not be altered as a result of such changes to Legal Requirements or interpretations thereof.

7.6 Compliance. QF represents, warrants, and covenants that throughout the Term QF shall: (i) be in material compliance with all Legal Requirements with respect to the design, development, construction, ownership, operation and maintenance of the Facility, including all required Consents, and, if applicable, the mitigation of environmental impacts associated with the Facility and QF's actions; and (ii) pay all costs, expenses, charges and fees in connection therewith. Upon request by Alabama Power, QF shall

provide Alabama Power with copies of all compliance information, including without restriction, copies of the necessary Consents.

7.7 General Services Administration Flow-Down Provisions. QF shall at all times comply with the provisions of **Appendix D** to this Agreement.

ARTICLE 8

PAYMENT PROCEDURE

8.1 Billing and Payment.

8.1.1 Within a reasonable period of time after the end of each Month during the Term, Alabama Power or its Affiliate shall provide QF with a statement ("Monthly Statement") containing: (i) the meter readings that measure the amount of Delivered Energy pursuant to this Agreement for such Month; and (ii) the amount of the payments required to be made by Alabama Power for such Month under **Appendix A** and the calculation thereof. By no later than the last Day of the Month following each Month for which a Monthly Statement is provided by Alabama Power, Alabama Power shall pay to QF the payments set forth in such Monthly Statement.

8.1.2 Within ten (10) Business Days after providing the Monthly Statement to QF under Section 8.1.1, except to the extent that Alabama Power nets amounts payable by QF against amounts payable by Alabama Power in the Monthly Statement, Alabama Power or its Affiliate shall provide QF with an invoice stating all amounts that are required to be paid by QF to Alabama Power, including the Monthly Administration Charge for each Month. Payment by QF of each such invoice shall be due and payable on or before the twentieth (20th) Day after QF's receipt of such invoice; provided, however, that any amount due from QF pursuant to a provision of this Agreement that provides for a specific period for payment shall be due and payable as set forth in such provision.

8.1.3 If any amount required to be paid under this Agreement is due on a Day other than a Business Day, then payment shall be due on the next succeeding Business Day. Payments under this Agreement shall be made on or before the date due in immediately available funds through wire transfer of funds or other means acceptable to the Parties. In the event payment is not made on or before the required due date (or, if such date is not a Business Day, the next succeeding Business Day), then interest shall be added to the overdue payment, from the date such overdue payment was due until such overdue payment together with interest is paid, which interest shall be compounded Monthly at the Interest Rate.

8.2 Billing Disputes and Adjustments.

8.2.1 In the event that either Party has a bona fide dispute with the applicable Monthly Statement or invoice submitted under this Agreement, such Party shall provide notice to the other Party that: (i) states the good faith basis for the dispute, (ii) specifies the portion of the amount in dispute, if any, and (iii) provides documentation

reasonably supporting the determination of the disputed amount. The Party required to make payment shall be entitled to withhold payment of such disputed amount until the dispute is resolved.

8.2.2 If any overcharge or undercharge in any form whatsoever shall at any time be found and substantiated, and the amounts set forth in the applicable Monthly Statement or invoice therefore has been paid, the Party that has been paid the overcharge shall refund the amount of the overcharge to the other Party, and the Party that has been undercharged shall pay the amount of the undercharge to the other Party, within thirty (30) Days after final determination thereof; provided, however, that no retroactive adjustment shall be made for any overcharge or undercharge unless written notice of the same is provided to the other Party within a period of three hundred sixty-five (365) Days from the date of the Monthly Statement or invoice in which such overcharge or undercharge was first included. Reimbursements determined to be due from a Party under this Section 8.2.2 shall be included on the next Monthly Statement or invoice (as applicable) and shall include interest from the date the original payment was received until the date of such reimbursement together with interest compounded Monthly at the Interest Rate.

8.3 Netting. The Parties hereby agree that they shall discharge all obligations due and owing to each other as of the same date under this Agreement through netting, in which case all amounts owed by each Party to the other Party under this Agreement shall be netted so that only the excess amount remaining due shall be paid by the Party who owes it.

ARTICLE 9

REPRESENTATIONS AND WARRANTIES

9.1 Execution. Each Party represents and warrants to the other Party as of the Effective Date that: (i) it has all the necessary corporate or _____ authority (as applicable) and all legal power and authority and has been duly authorized by all necessary corporate or _____ action (as applicable) to enable it to lawfully execute, deliver and perform under this Agreement; and (ii) it is a valid legal entity duly organized and validly existing in good standing under the laws of the state of its formation and is, to the extent required, qualified to do business in the State of Alabama.

9.2 Binding Obligations. Each Party represents and warrants to the other Party that, as of the Effective Date, this Agreement is the valid and binding obligation of such Party, enforceable against such Party in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, fraudulent conveyance, moratorium or other similar laws affecting enforcement generally, and by equitable principles regardless of whether such principles are considered in a proceeding at law or in equity.

9.3 Execution and Consummation. Each Party represents and warrants to the other Party that, as of the Effective Date, the execution and delivery of this Agreement,

the consummation of the transactions contemplated under this Agreement, and the fulfillment of and compliance with the provisions of this Agreement do not and will not conflict with any of the terms, conditions or provisions of its organizational documents or any Legal Requirement applicable to it.

9.4 Disclaimer. QF understands and agrees that Alabama Power's review of any material or information related to the Facility or any physical inspection of the Facility conducted by Alabama Power under any provision of this Agreement is solely for its own information. Any such review or inspection, or any consent to materials, information or plans provided by QF, shall not be construed as endorsing the design, fitness or operation of the Facility nor as a warranty or guarantee, and in no event shall Alabama Power be deemed to have accepted any condition of the Facility or any performance by QF that is not in full compliance with the terms of this Agreement. QF shall in no way represent to any Person that, as a result of Alabama Power's receipt and review of any material or information, any inspections by Alabama Power, or Alabama Power's execution of this Agreement, that Alabama Power is responsible for, has endorsed, warranted or otherwise approved any aspect or characteristic of the Facility.

ARTICLE 10

EVENTS OF DEFAULT

10.1 Default by QF. Any one or more of the following events shall constitute an Event of Default by QF and shall give Alabama Power the right, without limitation, to exercise the remedies specified in Section 10.3:

(i) QF fails to pay any amount payable by QF to Alabama Power under this Agreement when due, which failure has continued for thirty (30) Days after notice thereof has been given by Alabama Power to QF;

(ii) QF fails to perform or comply with any other material term or condition of this Agreement and fails to conform to said term and condition within sixty (60) Days after a demand by Alabama Power to do so;

(iii) QF fails to comply with the terms and conditions of Section 13.1;

(iv) QF becomes insolvent, becomes subject to bankruptcy or receivership proceedings, or dissolves as a legal business entity;

(v) any representation or warranty of QF to Alabama Power is false or misleading in any material respect when made and QF fails to conform to said representation or warranty within sixty (60) Days after a demand by Alabama Power to do so; or

(vi) the Interconnection Agreement is terminated due to an event of default of QF.

10.2 Default by Alabama Power. Any one or more of the following events shall constitute an Event of Default by Alabama Power and shall give QF the right, without limitation, to exercise the remedies specified in Section 10.3:

(i) Alabama Power fails to pay any amount payable by Alabama Power to QF under this Agreement when due, which failure has continued for thirty (30) Days after notice thereof has been given by QF to Alabama Power;

(ii) Alabama Power fails to perform or comply with any other material term or condition of this Agreement and fails to conform to said term or condition within sixty (60) Days after a demand by QF to do so;

(iii) Alabama Power becomes insolvent, becomes subject to bankruptcy or receivership proceedings, or dissolves as a legal business entity; or

(iv) any representation or warranty of Alabama Power to QF is false or misleading in any material respect when made and Alabama Power fails to conform to said representation or warranty within sixty (60) Days after a demand by QF to do so.

10.3 Remedies for Events of Default. For any Event of Default specified under Section 10.1 or Section 10.2, the non-defaulting Party may in its discretion terminate this Agreement by giving written notice thereof to the defaulting Party and/or exercise all remedies available at law or in equity.

10.4 Limitation of Liability. NEITHER PARTY SHALL BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, PUNITIVE, EXEMPLARY OR INDIRECT DAMAGES, OR LOSSES OR DAMAGES FOR LOST REVENUE OR LOST PROFITS OR OTHER BUSINESS INTERRUPTION DAMAGES, BY STATUTE, IN TORT OR CONTRACT, WHETHER FORESEEABLE OR NOT, ARISING OUT OF, OR IN CONNECTION WITH THIS AGREEMENT; PROVIDED, HOWEVER, THAT SUCH LIMITATION SHALL NOT APPLY IN THE CASE OF AMOUNTS OWED BY ALABAMA POWER TO THIRD PARTIES AND FOR WHICH ALABAMA POWER IS ENTITLED TO INDEMNIFICATION UNDER ARTICLE 11. ALABAMA POWER SHALL HAVE NO LIABILITY TO QF UNDER ANY LEGAL OR EQUITABLE THEORY FOR ANY FAILURE OR INABILITY OF QF TO CONSUMMATE ANY SALE OF ENVIRONMENTAL ATTRIBUTES OR TO HAVE ANY ENVIRONMENTAL ATTRIBUTES CERTIFIED BY ANY ORGANIZATION FOR ANY PURPOSE. QF SHALL INDEMNIFY AND HOLD ALABAMA POWER HARMLESS FROM ANY COSTS REASONABLY INCURRED BY ALABAMA POWER IN DEFENDING ANY CLAIM RELATED TO THE ENVIRONMENTAL ATTRIBUTES GENERATED BY THE QF, INCLUDING ANY CLAIM RELATED TO FAILURE OR INABILITY TO CONSUMMATE A SALE OF SUCH ENVIRONMENTAL ATTRIBUTES OR TO CERTIFY SUCH ENVIRONMENTAL ATTRIBUTES FOR ANY PURPOSE.

ARTICLE 11

INDEMNIFICATION

11.1 Indemnification. QF shall release, defend, indemnify and hold harmless Alabama Power and its Representatives, from and against any and all loss, damage, liability, claims, including claims and actions involving injury to or death of any person or damage to property, damages, penalties, demands, fines, forfeitures, suits, actions and causes of action and all costs and expenses incident thereto, including court costs, costs of defense, costs of investigation, settlements, judgments, and attorneys' fees, directly or indirectly resulting from the development, construction, use and operation of the Facility and all activities occurring on QF's side of the Point of Change in Ownership, including those which are alleged to be caused by, arise out of, or are in connection with: (i) QF's or its Representatives' environmental permitting or QF's or its Representatives' compliance with any Consent or Legal Requirement; (ii) QF's, its Representatives', or the Facility's failure to comply with any Consent or Legal Requirement; (iii) QF's or its Representatives' acts and omissions in connection with the performance, or failure thereof, of obligations or representations and warranties under this Agreement; (iv) any negligent (including strict liability), wanton, or intentional act or omission of QF, anyone directly or indirectly employed by QF, specifically including QF's agents, contractors, and subcontractors; and (v) the performance or non-performance of activities by QF's contractors and/or subcontractors.

11.2 Procedure. If Alabama Power becomes entitled to indemnification under Section 11.1 or any other provision of this Agreement, Alabama Power shall promptly notify QF of any claim or proceeding in respect of which it is to be indemnified. Such notice shall be given as soon as reasonably practicable after Alabama Power becomes aware of such claim or proceeding. Failure to give such notice shall not excuse an indemnification obligation. QF shall assume the defense thereof with counsel designated by Alabama Power; provided, however, that if the defendants in any such action include both QF and Alabama Power, and if Alabama Power reasonably concludes that there may be legal defenses available to it that are different from or additional to, or inconsistent with, those available to the QF, Alabama Power shall have the right to select and be represented by separate counsel, at the expense of QF. If QF fails to assume the defense of a claim, the indemnification of which is required under this Agreement, Alabama Power may, at the expense of QF, contest, settle, or pay such claim.

11.3 Survival. All provisions of this Article 11 and all other indemnity obligations of the Parties under this Agreement shall survive termination of this Agreement, by default or otherwise, regardless of whether such obligations accrue prior to or after such termination. QF's indemnity obligations contained in this Agreement shall be independent of and shall not be limited by or limit the obligations of QF to procure and maintain insurance as may be required by any other agreement between the Parties.

ARTICLE 12

FORCE MAJEURE

12.1 Force Majeure. For the purposes of this Agreement, a "Force Majeure Event" as to a Party means any occurrence, nonoccurrence or set of circumstances that is beyond the reasonable control of such Party and is not caused by such Party's negligence or lack of due diligence, including flood, drought, ice, earthquake, windstorm or eruption; fire; explosion; invasion, civil war, commotion or insurrection; sabotage or vandalism; military or usurped power; or act of God or of a public enemy.

12.2 No Breach or Liability. A Party shall be excused from performing its obligations under this Agreement and shall not be liable in damages or otherwise if and to the extent that it is unable to so perform or are prevented from performing by a Force Majeure Event, provided that such Party shall:

(i) give the other Party notice thereof, followed by written notice if the first notice is not written, as promptly as possible after such Party becomes aware of such Force Majeure Event, describing the particulars of such Force Majeure Event;

(ii) use its reasonable best efforts to remedy its inability to perform as soon as practicable; provided, however, that this Section 12.2 shall not require the settlement of any strike, walkout, lockout or other labor dispute on terms which, in the sole judgment of the Party involved in the dispute, are contrary to its interest; provided further, that the settlement of strikes, lockouts or other labor disputes shall be entirely within the discretion of the Party having the difficulty; and

(iii) when it is able to resume performance of its obligations under this Agreement, give the other Party written notice to that effect.

12.3 Suspension of Performance. The suspension of performance due to a Force Majeure Event shall be of no greater scope and of no longer duration than is required by such Force Majeure Event. No Force Majeure Event shall extend this Agreement beyond its stated Term.

ARTICLE 13

MISCELLANEOUS

13.1 Confidentiality. QF acknowledges and agrees that the information contained within all Monthly Statements and all invoices under this Agreement, and all amounts paid by the Parties to one another under this Agreement, constitute confidential and proprietary information of Alabama Power ("Confidential Information"). During the Term of this Agreement and for a period of two (2) years thereafter, QF shall not disclose such Confidential Information to any Person except for those of its officers, directors,

employees, representatives and any Collateral Assignees who agree to maintain the confidentiality of such Confidential Information in accordance with the terms hereof and who need to know the Confidential Information for purposes of performance under this Agreement.

13.2 Assignment. Neither Party shall assign this Agreement or any portion thereof without the prior written consent of the other Party which consent shall not be unreasonably withheld (except that Alabama Power may assign this Agreement or any portion thereof to any Affiliate of Alabama Power without the consent of QF); provided further, that: (i) any assignee shall expressly assume assignor's obligations under this Agreement and (ii) unless expressly approved by the other Party to this Agreement, which approval shall not be unreasonably withheld, no assignment, whether or not consented to, shall relieve the assignor of its obligations under this Agreement in the event its assignee fails to perform. QF may, upon notice to Alabama Power, make a collateral assignment of its interest in this Agreement to one or more Collateral Assignees that does not otherwise affect QF's performance obligations under this Agreement.

13.3 Taxes.

13.3.1 QF shall pay, or cause to be paid, all Taxes on or with respect to: (i) the Facility, including its development, permitting, design, engineering, procurement, construction, testing, startup, ownership, leasing, financing, operation, and maintenance; (ii) the production, sale and provision of energy under this Agreement; (iii) all Taxes that are associated with emissions from the Facility, regardless of whether such Taxes are assessed on Alabama Power or QF; and (iv) QF's procurement and use of fuel. It is the intent of the Parties that such Taxes for which QF is responsible shall include any and all sales, transfer and other similar Taxes on the sale to Alabama Power of energy under this Agreement, whether such Taxes are imposed on Alabama Power or QF.

13.3.2 In the event Alabama Power is required by law or regulation to remit or pay Taxes that are QF's responsibility under this Agreement, Alabama Power may deduct the amount of any such Taxes from the amounts otherwise due to QF under this Agreement, provided that if Alabama Power does not elect to deduct such amount, QF shall pay such amount to Alabama Power upon request by Alabama Power.

13.3.3 QF shall provide Alabama Power with all information requested by it for the purpose of reporting payments made pursuant to this Agreement to any federal or state authorities, including a fully completed Form W-9.

13.4 Variable Interest Entity.

13.4.1 Within five (5) Days after the Effective Date and thereafter prior to the commencement of the Initial Period and each Annual Period of the Term, QF shall provide Alabama Power with the Variable Interest Entity ("VIE") information in the form of **Appendix F** attested to and signed by a duly authorized officer of QF. QF covenants to promptly notify Alabama Power following any determination made by QF or its independent auditor that QF must be partially or fully deconsolidated from the books of

QF's parent, as the case may be, or any other changes that require reconsideration, including a change in the primary benefactor. Should existing accounting standards be modified or new standards adopted which supersede the standards at the time of execution of this Agreement, then **Appendix F** shall be modified accordingly for QF and Alabama Power to account for this arrangement appropriately in their respective books and records.

13.4.2 In the event that Alabama Power's independent accountants determine that consolidation of QF, or any of its Affiliates or permitted assigns, as a VIE in Alabama Power's or any of its Affiliates' financial statements has occurred, Alabama Power may provide notice to QF of such condition. In addition, within ten (10) Business Days after receiving any such notice, QF shall provide all necessary financial information to Alabama Power to enable Alabama Power (and any of its applicable Affiliates) to properly consolidate QF (and any of its applicable Affiliates) on a timely basis.

13.5 Governing Law; Venue; Waiver of Jury Trial.

13.5.1 The validity, interpretation and performance of this Agreement, and each of its provisions, shall be governed by the laws of the State of Alabama, without giving effect to the principles of conflict of laws.

13.5.2 EACH PARTY HERETO HEREBY AGREES THAT THE UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF ALABAMA AND ANY ALABAMA STATE COURT SITTING IN JEFFERSON COUNTY, ALABAMA SHALL HAVE EXCLUSIVE JURISDICTION FOR THE PURPOSES OF ALL LEGAL PROCEEDINGS AND RESOLVING ALL DISPUTES ARISING OUT OF OR RELATING TO THIS AGREEMENT. EACH PARTY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY LAW, ANY OBJECTION WHICH IT MAY NOW OR HEREAFTER HAVE TO THE LAYING OF THE VENUE OF ANY SUCH PROCEEDING BROUGHT IN SUCH A COURT AND ANY CLAIM THAT ANY SUCH PROCEEDING BROUGHT IN SUCH A COURT HAS BEEN BROUGHT IN AN INCONVENIENT FORUM.

13.5.3 EACH PARTY HERETO HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING OR COUNTERCLAIM ARISING OUT OF OR RELATING TO THIS AGREEMENT.

13.6 No Partnership. QF and Alabama Power do not intend for this Agreement to, and this Agreement shall not, create any joint venture, partnership, association taxable as a corporation, or other entity for the conduct of any business for profit.

13.7 Successors and Assigns. This Agreement shall inure to the benefit of and be binding upon any respective successors and assigns of QF and Alabama Power.

13.8 No Third Party Benefit. Nothing in this Agreement shall be construed to create any duty, obligation or liability of Alabama Power to any person or entity not a party to this Agreement.

13.9 No Affiliate Liability. Notwithstanding any other provision of this Agreement, no Affiliate of Alabama Power shall have any liability whatsoever for any party's performance, nonperformance or delay in performance under this Agreement.

13.10 No Waiver. Neither Alabama Power's nor QF's failure to enforce any provision or provisions of this Agreement shall in any way be construed as a waiver of any such provision or provisions as to any future violation thereof nor prevent it from enforcing each and every other provision of this Agreement at such time or at any time thereafter. The waiver by either Alabama Power or QF of any right or remedy shall not constitute a waiver of its right to assert said right or remedy, at any time thereafter, or any other rights or remedies available to it at the time of or any time after such waiver.

13.11 Amendment. This Agreement may be amended by, and only by, a written instrument duly executed by each of QF and Alabama Power, which has received all approvals of Governmental Authorities of competent jurisdiction necessary for the effectiveness thereof.

13.12 Notices. Any notice, demand, request, statement, or correspondence provided for in this Agreement, or any notice which a Party may desire to give to the other in connection with this Agreement, shall be in writing (unless otherwise expressly provided by this Agreement) and shall be considered duly delivered when received by overnight delivery by a national and reputable delivery service, at the address(es) and to the attention of the person(s) listed below.

(i) **To Alabama Power**:

Alabama Power Company
Attn: Executive Vice President and Chief Financial Officer and Treasurer
600 18th Street North
Birmingham, AL 35291

with copies to:

Alabama Power Company
Attn: Director of Forecasting and Resource Planning
600 18th Street North
Birmingham, AL 35291

(ii) **To QF**:

with a copy to:

unless Alabama Power or QF shall have designated a different officer or address for itself by written notice to the other.

13.13 Counterparts; Electronic Copies. This Agreement may be executed by facsimile or PDF (electronic copy) and in counterparts, all of which for all purposes will be deemed to be an original and all of which, taken together, constitute one and the same instrument.

13.14 Articles and Section Headings. The descriptive headings of the various articles and sections of this Agreement have been inserted for convenience of reference only and shall in no way modify or restrict any of the terms or provisions under this Agreement.

13.15 Transfer of Information Acknowledgement. QF agrees to execute contemporaneously with the execution of this Agreement, the Transfer of Information Acknowledgement attached as **Appendix E**, and Alabama Power agrees to the limited use and confidential treatment of such information as set forth in **Appendix E**.

13.16 Entire Agreement; No Reliance. This Agreement constitutes the entire understanding between the Parties and supersedes any previous agreements related to the subject matter hereof between the Parties. The Parties have entered into this Agreement in reliance upon the representations and mutual undertakings contained herein and not in reliance upon any oral or written representations or information provided by one Party to the other Party not contained or incorporated herein.

[The next page is the signature page.]

IN WITNESS WHEREOF, QF and Alabama Power have caused this Agreement to be executed by their duly authorized representatives on the day and year first above written.

ALABAMA POWER COMPANY

By: _____

Name: _____

Title: _____

[QF]

By: _____

Name: _____

Title: _____

APPENDIX A

CALCULATION OF MONTHLY PAYMENTS

By no later than sixty (60) Days prior to the commencement of the Initial Period, QF shall provide notice to Alabama Power electing either Option 1 or Option 2 under Section 2 below for the pricing (and associated terms and conditions) that shall apply for the Initial Period. In addition, in each notice (if any) from QF that extends the Term for an Annual Period pursuant to Section 3.2 of this Agreement, QF shall elect either Option 1 or Option 2 under Section 2 below for the pricing (and associated terms and conditions) that shall apply for the Annual Period to which such notice applies. After QF provides a notice electing either Option 1 or Option 2 for the Initial Period or a given Annual Period, such notice shall be irrevocable for the entirety of such period. Notwithstanding the foregoing, if **Appendix B** applies to QF, then Option 2 pricing shall apply for the term of this Agreement.

1. Definitions.

For purposes of this **Appendix A**, in addition to the defined terms in this Agreement, the following terms shall have the meanings set forth below:

"**AIER**" means the "Associated Interchange Energy Rate" or "AIER" (or applicable successor(s) rate thereto) (in $/MWh), as determined under the IIC.

"**IIC**" means that certain document, the Southern Company System Intercompany Interchange Contract, as filed pursuant to 119 FERC 61,065 (2007) and designated as Southern Company Services, Inc., Second Revised Rate Schedule FERC Number 138, by and among Alabama Power and certain of its Affiliates, including the Allocation Methodology and Periodic Rate Computation Manual attached to, and incorporated in, the IIC, and excluding periodic informational filings, as the same may be amended and restated, or any successor contract filed with FERC among Alabama Power and certain of its Affiliates for coordinated operations.

~~"**Integration Cost**" means $0.00193 per kWh of Delivered Energy.~~

"**Non-Summer**" means the November 1 through March 31 period as set forth in Rate CPE.

"**Non-Summer Off-Peak Period**" means, with respect to a given Non-Summer Month, all Hours of such Month occurring during the "Non-Summer Off-Peak" (or similar designation) periods, as set forth in the Rate CPE that applies for such Month, including all portions of such periods when Delivered Energy is not provided by QF.

"**Non-Summer Peak Period**" means, with respect to a given Non-Summer Month, all Hours of such Month occurring during the "Non-Summer Peak" (or similar designation)

periods, as set forth in the Rate CPE that applies for such Month, including all portions of such periods when Delivered Energy is not provided by QF.

"**Summer**" means the April 1 through October 31 period as set forth in Rate CPE.

"**Summer Off-Peak Period**" means, with respect to a given Summer Month, all Hours of such Month occurring during the "Summer Off-Peak" (or similar designation) periods, as set forth in the Rate CPE that applies for such Month, including all portions of such periods when Delivered Energy is not provided by QF.

"**Summer Peak Period**" means, with respect to a given Summer Month, all Hours of such Month occurring during the "Summer Peak" (or similar designation) periods, as set forth in the Rate CPE that applies for such Month, including all portions of such periods when Delivered Energy is not provided by the QF.

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2. Options.

OPTION 1

For Option 1 pricing, Alabama Power shall pay to QF a Monthly Energy Payment ("MEP") for each Month of the applicable period, determined as follows:

For each Summer Month, the MEP shall be calculated as follows:

MEP = (Summer Peak Delivered Energy * Summer Peak Energy Price) + (Summer Off-Peak Delivered Energy * Summer Off-Peak Energy Price) ~~– (Integration Cost * [Summer Peak Delivered Energy + Summer Off-Peak Delivered Energy])~~

Where:

Summer Peak Delivered Energy = the total amount of Delivered Energy (in kWh) for all Hours of all Summer Peak Periods that occur during the applicable Month.

Summer Peak Energy Price = the applicable energy rate (in $/kWh) for the Summer Peak Period, as set forth in the Rate CPE that applies for such Month.

Summer Off-Peak Delivered Energy = the total amount of Delivered Energy (in kWh) for all Hours of all Summer Off-Peak Periods that occur during the applicable Month.

Summer Off-Peak Energy Price = the applicable energy rate (in $/kWh) for the Summer Off-Peak Period, as set forth in the Rate CPE that applies for such Month.

For each Non-Summer Month, the MEP shall be calculated as follows:

MEP = (Non-Summer Peak Delivered Energy * Non-Summer Peak Energy Price) + (Non-Summer Off-Peak Delivered Energy * Non-Summer Off-Peak Energy Price) ~~– (Integration Cost * [Non-Summer Peak Delivered Energy + Non-Summer Off-Peak Delivered Energy])~~

Where:

Non-Summer Peak Delivered Energy = the total amount of Delivered Energy (in kWh) for all Hours of all Non-Summer Peak Periods that occur during the applicable Month.

Non-Summer Peak Energy Price = the applicable energy rate (in $/kWh) for the Non-Summer Peak Period, as set forth in the Rate CPE that applies for such Month.

Non-Summer Off-Peak Delivered Energy = the total amount of Delivered Energy (in kWh) for all Hours of all Non-Summer Off-Peak Periods that occur during the applicable Month.

Non-Summer Off-Peak Energy Price = the applicable energy rate (in $/kWh) for the Non-Summer Off-Peak Period, as set forth in the Rate CPE that applies for such Month.

OPTION 2

For Option 2 pricing, the following shall apply for the applicable period:

For each Month of the applicable period, Alabama Power shall pay to QF an "Estimated Monthly Energy Payment" ("EMEP"), each of which shall be determined in the same manner as the "Monthly Energy Payment" would be determined for such Month under Option 1 of this **Appendix A**. Subsequently, within six (6) Months after the end of the Initial Period and each subsequent Annual Period for which this Option 2 is applicable (or, if applicable, the earlier termination of this Agreement), Alabama Power shall calculate an "Actual Monthly Energy Payment" ("AMEP") for each Month of such previous Initial Period and Annual Period as follows:

For each Summer Month, the AMEP shall be calculated as follows:

AMEP = {Summer Peak Delivered Energy * [Summer Peak Energy Price * (1 + Applicable Loss Factor)] + Summer Off-Peak Delivered Energy * [Summer Off-Peak Energy Price * (1 + Applicable Loss Factor)]} ~~– {Integration Cost * [(Summer Peak Delivered Energy + Summer Off-Peak Delivered Energy)]}~~

Where:

Summer Peak Delivered Energy = the total amount of Delivered Energy (in MWh) for all Hours of all Summer Peak Periods that occur during the applicable Month.

Summer Peak Energy Price = the average AIER for all Hours of all Summer Peak Periods that occur during the applicable Month.

Summer Off-Peak Delivered Energy = the total amount of Delivered Energy (in MWh) for all Hours of all Summer Off-Peak Periods that occur during the applicable Month.

Summer Off-Peak Energy Price = the average AIER for all Hours of all Summer Off-Peak Periods that occur during the applicable Month.

Applicable Loss Factor = a loss factor determined by Alabama Power that is intended, if necessary, to adjust the energy prices above (which are determined at the transmission level voltage) to the same voltage level at the Interconnection Point, and which shall be the applicable loss factor determined from time-to-time for distribution or sub-transmission facilities of Alabama Power; provided that, if the voltage level of the Interconnection Point is equal to or greater than 115kV, then the Applicable Loss Factor shall be equal to zero (0).

For each Non-Summer Month, the AMEP shall be calculated as follows:

AMEP = {Non-Summer Peak Delivered Energy * [Non-Summer Peak Energy Price * (1 + Applicable Loss Factor)] + Non-Summer Off-Peak Delivered Energy * [Non-Summer Off-Peak Energy Price * (1 + Applicable Loss Factor)]} ~~– {Integration Cost * [Non-Summer Peak Delivered Energy + Non-Summer Off-Peak Delivered Energy]}~~

Where:

Non-Summer Peak Delivered Energy = the total amount of Delivered Energy (in MWh) for all Hours of all Non-Summer Peak Periods that occur during the applicable Month.

Non-Summer Peak Energy Price = the average AIER for all Hours of all Non-Summer Peak Periods that occur during the applicable Month.

Non-Summer Off-Peak Delivered Energy = the total amount of Delivered Energy (in MWh) for all Hours of all Non-Summer Off-Peak Periods that occur during the applicable Month.

Non-Summer Off-Peak Energy Price = the average AIER for all Hours of all Non-Summer Off-Peak Periods that occur during the applicable Month.

Applicable Loss Factor =	a loss factor determined by Alabama Power that is intended, if necessary, to adjust the energy prices above (which are determined at the transmission level voltage) to the same voltage level at the Interconnection Point, and which shall be the applicable loss factor determined from time-to-time for distribution or sub-transmission facilities of Alabama Power; provided that, if the voltage level of the Interconnection Point is equal to or greater than 115kV, then the Applicable Loss Factor shall be equal to zero (0).

After the AMEPs are calculated for the Initial Period or an applicable Annual Period, Alabama Power shall calculate the difference of: (i) the total of the previously paid EMEPs for such period; minus (ii) the total of the calculated AMEPs for such period (such difference being referred to as the "True-up"). In the event that such True-up is positive (i.e., the sum of the previously paid EMEPs for the applicable Initial Period or Annual Period is higher than the sum of AMEPs for such period), then such True-up shall be paid by QF pursuant to Section 8.1.2 of the Agreement or credited to Alabama Power on subsequent Monthly Statements. In the event that such True-up is negative (i.e., the sum of the previously paid EMEPs for the applicable Initial Period or Annual Period is less than the sum of AMEPs for such period), then the absolute value of such True-up shall be paid by Alabama Power to QF. Notwithstanding any other provision of the Agreement, neither Party shall be required to pay interest on any such True-up that is required to be paid by or credited to either Party.

In addition, by no later than five (5) Business Days after QF elects Option 2 for any period pursuant to the applicable notice, QF shall be required to provide to Alabama Power, and thereafter maintain, performance security to secure QF's potential obligation to pay such True-up payment under this Option 2, which security shall at all times be either: (i) a letter of credit issued by a major U.S. commercial bank who has and maintains assets of at least $25 billion and a senior unsecured rating of at least A2 by Moody's and at least A by Standard & Poor's; (ii) cash security provided pursuant to a pledge agreement and control agreement; or (iii) other security acceptable to Alabama Power, in each case of (i), (ii) and (iii) in form and substance acceptable to Alabama Power. The amount of such performance security shall be subject to adjustment by Alabama Power from time to time throughout the Term in order to reflect Alabama Power's current estimate of such True-up payment. If such adjustment results in an increase in the amount of required performance security, within five (5) Business Days of a request from Alabama Power, QF shall provide and maintain additional performance security hereunder so that the total available undrawn amount of performance security then provided to and held by Alabama Power hereunder is equal to such increased amount. Alabama Power shall be entitled to draw upon and/or be paid upon such performance security: (i) for any obligation arising under the Agreement that is not paid when due; (ii) if such performance security is within

ninety (90) Days of expiry, expiration or termination; and/or (iii) otherwise in compliance with the terms of such performance security.

APPENDIX B

Automatic Generation Control (AGC) Requirements
~~AGC Requirements~~

QF will, at its expense, install, operate and maintain AGC equipment and systems at the Facility as necessary to enable the Facility to respond to and follow Alabama Power's AGC Setpoint signals. The Facility's AGC equipment and systems must conform to Prudent Industry Practices. QF is responsible for all costs incurred with respect to the Facility that are necessary to make the Facility respond to Alabama Power's AGC Setpoint signals. The Facility must be capable of remaining on AGC at all times and operating in compliance with Alabama Power's AGC Setpoint signals. The Facility's AGC systems will include all necessary connections to the AGC equipment and systems of Alabama Power (to Alabama Power's reasonable satisfaction) to enable Alabama Power to send AGC Setpoint signals to the Facility and measure, record and control energy output from the Facility at all times.

For any AGC Setpoint signals issued below the Potential High Limit, the Facility will reduce energy output to the AGC Setpoint. QF must telemeter the maximum Rate of Change at all times during the operation of the Facility, and the AGC Setpoint signal will include the maximum Rate of Change as a limiting factor for changes in energy output.

QF must telemeter an accurate Potential High Limit (real-time capability) at all times during the operation of the Facility. The Facility must include an operational automatic system for accurately estimating the Potential High Limit ("PHL") that will telemeter estimates of the energy output of the Facility in the absence of an AGC Setpoint signal limiting the energy output of the Facility. Such system will provide PHL estimates every 6 seconds at all times during which the Facility is generating energy, regardless of whether any AGC Setpoint signal from Alabama Power is being received or responded to by the Facility. Such system must produce PHL estimates within an accuracy of at least +/- 5% during at least 95% of all 6-second intervals.

By no later than one (1) year prior to the expected date of initial deliveries of energy from the Facility, QF will submit the detailed design and expected performance of the PHL estimation system to Alabama Power for review and approval, such approval not to be unreasonably withheld. Alabama Power will provide any written comments regarding the proposed PHL estimation system design to QF within thirty (30) Days after receipt of the required submittal from QF. Within sixty (60) Days after receipt of Alabama Power's comments, QF will make corrections and modifications to the proposed PHL estimation system design as necessary to properly address Alabama Power's comments, including correcting deficiencies and remedying issues and satisfying requirements raised in Alabama Power's comments, and will resubmit the revised proposed PHL estimation system design to Alabama Power for review and approval, such approval not to be unreasonably withheld. This process shall be repeated on an iterative basis until QF has developed a PHL estimation system design that is approved by Alabama Power, such approval not to be unreasonably withheld.

By no later than fourteen (14) Days prior to the expected date of initial deliveries of energy from the Facility, QF will provide to Alabama Power a detailed analysis and verification report regarding the completed testing of the performance and accuracy of the PHL estimation system, which demonstrates that the installed PHL estimation system is capable of satisfying the above-referenced performance and accuracy requirements.

QF will enable Alabama Power to have real-time access to all modeling data, meteorological data, inverter data, and any and all other data used in producing the PHL estimates provided to Alabama Power. Alabama Power will have the right to retain, review, and reproduce any and all modeling and analysis used by QF to estimate PHL, with such support from QF as may be reasonably requested by Alabama Power.

The Parties will develop mutually agreed upon (such agreement by a Party not to be unreasonably withheld) methods for validating the estimated PHL and improving the accuracy of the estimated PHL, which methods may include test curtailments or uncurtailments, inverter performance analysis, and other equipment as appropriate for the Facility. A primary source of validation data to monitor the PHL estimation system's accuracy and error will be the recorded PHL estimates compared to the Facility's actual energy output in all 6-seconds periods outside of AGC Curtailment. The Parties will review and monitor PHL estimate errors to identify any bias in the PHL estimates. If any bias is identified in the PHL estimates, the calculation of the amount of AGC Curtailed Energy will be adjusted by Alabama Power to correct for such bias.

The Facility's AGC equipment and systems must be configured to interface with Alabama Power's AGC Remote Terminal Unit ("RTU") to send and receive data for AGC that satisfies the following minimum data requirements.

From Alabama Power to Facility

- Setpoint (MW)

From Facility to Alabama Power

- AGC Status (1/0)
- Operating High Limit (MW)
- High Limit Status (1/0)
- Potential High Limit (MW)
- Low Operating Limit (MW)
- Low Limit Status (1/0)
- Facility Rate of Change Increase (+MW/min)
- Facility Rate of Change Decrease (-MW/min)
- Setpoint Feedback

General Flow of AGC

The Facility will transmit in 6-second intervals all of its points to Alabama Power and Alabama Power will update its points every scan. The Facility will calculate its maximum and minimum MW and will transmit those to Alabama Power every scan. The Facility will

also transmit its AGC rate of change for both increase and decrease and will echo back to Alabama Power what it has received for the AGC Setpoint.

The Facility will operate at full output until an AGC Setpoint is issued below the PHL. Upon receiving this AGC Setpoint, the site will reduce output to meet the AGC Setpoint and continue to follow it any other AGC Setpoints until an AGC Setpoint is issued above the PHL.

Explanation of Points

From Alabama Power to Facility

- Setpoint (MW) – This will be an integer value that will range from 0 to the Operating High Limit. If not in AGC Curtailment, this value will echo the Operating High Limit. If AGC Curtailment is active, the Facility's Energy output will follow the AGC Setpoint.

From Facility to Alabama Power

- AGC Status – This will be an integer value that will range from 0 to 1. A '0' value will indicate the Facility is not in AGC mode and is not capable of responding to Alabama Power's AGC Setpoint signal and a '1' will indicate the Facility is in AGC mode and capable of responding to Alabama Power's AGC Setpoint signal.

- Operating High Limit (MW) – The maximum generating capacity of the Facility adjusted for any equipment limitations or outages that could limit the maximum output.

- High Limit Status – This will be an integer value that will range from 0 to 1. The normal state will be 0. A value of 1 will indicate generation is currently being curtailed.

- Potential High Limit (MW) – The estimated value of the potential instantaneous power output of the Facility as if the Facility is not in a period of AGC Curtailment.

- Operating Low Limit (MW) – During normal operation the Facility will provide a low limit for available AGC Curtailment. The expectation is this would be 0 MW under normal conditions.

- Low Limit Status – This will be an integer value that will range from 0 to 1. The normal state will be 0. A value of 1 will indicate generation is at the Operating Low Limit.

- Facility Rate of Change Increase (+MW/min) – This is the Facility's real-time maximum ramp rate when increasing generating output, accounting for any equipment or operational issues which may affect such ramp rate.

- Facility Rate of Change Decrease (-MW/min) – This is the Facility's real-time maximum ramp rate when decreasing the generating output, accounting for any equipment or operational issues which may affect such ramp rate.

- Setpoint Feedback – This is an echo of the value received from Alabama Power's AGC Setpoint signal.

QF is responsible for operating the Facility and producing and delivering energy in compliance with Alabama Power's AGC Setpoint signals. If Alabama Power's Setpoint signals direct a reduction of QF output during any time other than an occurrence under 18 C.F.R. § 292.304(f)(1) or 18 C.F.R. § 292.307, then QF and Alabama Power shall determine the amount of energy (in kWh) curtailed, and which otherwise would have constituted Delivered Energy, and such energy shall be included in the determination of AMEP under Appendix A as if the energy in fact was Delivered Energy.

Upon the conclusion of each Month, Alabama Power will perform the following calculations for each of the AGC Status Performance Metric and the AGC Setpoint Response Performance Metric to determine whether QF has achieved the AGC Status Performance Requirement and the AGC Setpoint Response Performance Requirement, respectively. If QF fails to achieve the AGC Status Performance Requirement or the AGC Setpoint Response Performance Requirement for (i) any three (3) consecutive Month period or (ii) six (6) Months in any twelve (12) Month period, then QF's failure shall constitute an Event of Default as set forth in the Agreement.

AGC Status Performance Requirement:
The AGC Status Performance Requirement for each Month is that the AGC Status Performance Metric for the Month will equal ninety percent (90%), or greater. The AGC Status Performance Metric for each Month will be calculated as follows:

$$\text{AGC Status Performance Metric} = \left[\sum_{i=1}^{n}\left(\frac{\text{AGC Status}_i}{n}\right)\right]*100$$

Where:
n = total 6-seconds data points in the Month during times of generation to be defined by the Parties consistent with Article 4 of the Agreement

i = 6-seconds data point

AGC Status = 1 if the Facility is in AGC mode and capable of responding to Alabama Power's AGC Setpoint signal, or zero (0) if the Facility is not in AGC mode and is not capable of responding to Alabama Power's AGC Setpoint signal.

AGC Setpoint Response Performance Requirement:
The AGC Setpoint Response Performance Requirement for each Month is a Root Mean Squared Error ("RMSE") less than or equal to 5. The RMSE for each Month will be calculated as follows:

$$\text{Root Mean Squared Error (RMSE)} = \sqrt{\sum_{i=1}^{n} \frac{(\text{AGC Setpoint}_i - \text{Facility Energy Output}_i)^2}{n}}$$

Where:
AGC Setpoint = AGC Setpoint value in MW for the 6-seconds period

Facility Energy Output = the Energy output from the Facility in net kWh at the Point of Interconnection for the 6-seconds period

n = Number of 6-seconds periods in the Month for which there was an AGC Curtailment

i = 6-seconds data point

For the avoidance of doubt, all 6-seconds periods for which there is no AGC Curtailment will be excluded from the calculation of RMSE.

As stated above, if the AGC Setpoint Response Performance Requirement is not met for (i) any three (3) consecutive Months or (ii) six (6) Months in any twelve (12) Month period, then QF's failure to meet the AGC Setpoint Response Performance Requirement shall constitute an Event of Default under this Agreement.

For purposes of this Appendix B, the following terms have the meaning ascribed to them:

"AGC" or **"Automatic Generation Control"** means, generally, the equipment and capability of an electric generation facility to automatically adjust the generation quantity within the applicable balancing authority with the purpose of interchange balancing and means, specifically, the Facility's capability of accepting a set point electronically and the automatic adjustment and regulation of the Facility's energy production to meet the set point.

"**AGC Curtailment**" means a period of time when the energy output from the Facility is reduced below its Potential High Limit in response to an AGC Setpoint that is below the estimated Potential High Limit for the corresponding 6-second intervals.

"**AGC Setpoint**" means a value (MW) that will range from 0 to the Operating High Limit.

"**Potential High Limit**" or **"PHL"** means the estimated value of the potential instantaneous power output (MW) of the Facility as if the Facility is not in a period of AGC Curtailment.

APPENDIX C

MONTHLY ADMINISTRATION CHARGE

QF shall pay to Alabama Power a Monthly Administration Charge, in dollars ($) per Month, for: (i) all costs and expenses incurred by Alabama Power during such Month in connection with Alabama Power's administration of this Agreement; (ii) all costs and expenses incurred by Alabama Power during such Month in connection with implementing the applicable Option 1 or Option 2 under **Appendix A**, including preparation of the Monthly Statement and calculation of the amounts required to be paid by Alabama Power for each Month, the costs and expenses associated with which will vary depending on the option elected by QF; (iii) any Taxes, assessments or other impositions for which Alabama Power may be liable as a result of purchase of energy from QF or any other activity undertaken pursuant to this Agreement; (iv) any amounts owed to Alabama Power with respect to metering as set forth in Article 5, or (v) all amounts which are otherwise chargeable to or to be paid by QF under a provision of this Agreement. The Monthly Administration Charge for the Initial Period and any subsequent Annual Period shall not exceed $1,000.

For the purposes of this Agreement, the Monthly Administration Charge shall be $_____.

APPENDIX D

GENERAL SERVICES ADMINISTRATION FLOW-DOWN PROVISIONS

Alabama Power is a government contractor under an Areawide Public Utilities Contract with the General Services Administration of the United States Government, and as such, is required to conduct business with entities in compliance with the regulations contained herein. Accordingly, QF agrees that its performance and the performance of its contractors, subcontractors, vendors and suppliers under this Agreement shall comply with the following Federal Acquisition Regulations which shall be incorporated herein by reference as if set forth herein in full text:

(i)	52.203-3	Gratuities (APR 1984);
(ii)	52.203-6	Restrictions on Subcontractor Sales to the Government (SEPT 2006);
(iii)	52.203-7	Anti-Kickback Procedures (MAY 2014);
(iv)	52.219-8	Utilization of Small Business Concerns (OCT 2014);
(v)	52.219-9	Small Business Subcontracting Plan (OCT 2014)
(vi)	52.222-21	Prohibition of Segregated Facilities (FEB 1999);
(vii)	52.222-26	Equal Opportunity (MAR 2007);
(viii)	52.222-37	Employment Reports on Veterans (JUL 2014);
(ix)	52.222-40	Notification of Employee Rights under the National Labor Relations Act (DEC 2010);
(x)	52.222-50	Combating Trafficking in Persons (FEB 2009);
(xi)	52.222-54	Employment Eligibility Verification (AUG 2013); and
(xii)	52.222-13	Restrictions on Certain Foreign Purchases (JUN 2008)

Upon written request, Alabama Power will provide the full text of any of the above sections incorporated herein by reference. QF warrants and represents that neither it nor any of its Affiliates, agents, contractors or subcontractors is debarred, suspended or proposed for debarment as a contractor or subcontractor to any department, agency or other division of the United States Government. In the event that QF or any of its Affiliates, agents, contractors or subcontractors become debarred, suspended or proposed for debarment during the term of this Agreement, QF will immediately notify Alabama Power verbally and in writing.

APPENDIX E

TRANSFER OF INFORMATION ACKNOWLEDGEMENT

_____ ("QF") and Alabama Power Company ("Alabama Power") have entered into that certain Contract for the Purchase of Energy from a Qualifying Facility ("Agreement") dated as of _____. The Agreement contemplates that certain information that could be considered to be non-public information that potentially has implications under the Federal Energy Regulatory Commission's Standards of Conduct will be provided by QF to Alabama Power and/or Southern Company Services, Inc., as agent for the transmission owning subsidiaries of The Southern Company (Alabama Power, Georgia Power Company, Gulf Power Company, and Mississippi Power Company). QF acknowledges that such information is being provided for the purposes of operational implementation and administration of the Agreement (which includes conducting Alabama Power's system operations and dispatch functions) and will be utilized by individuals in both Transmission Provider and Energy Affiliate/wholesale marketing unit functions under the Standards of Conduct.

The individuals within The Southern Company organizations indicated above may only use the information for the purpose of implementing and administering the Agreement (including conducting Alabama Power's system operations and dispatch functions). QF understands that such information will not be used or disseminated in any manner contrary to the confidentiality provision(s) in the Agreement or in violation of the Federal Energy Regulatory Commission's Standards of Conduct. QF's provision of this information has not been and is not being provided in exchange for any preferential treatment, either operational or rate-related, by Southern Company Services, Inc. or by any of the transmission-owning subsidiaries of The Southern Company. QF also acknowledges that QF is not providing the information under duress or coercion. In accordance with requirements of the Federal Energy Regulatory Commission, Southern Company Services, Inc. may post on OASIS the fact of QF's consent to the provision of the information specified above to certain employees that may be employed within organizational units deemed to be Energy Affiliates/wholesale marketing units under the Standards of Conduct.

Acknowledged on behalf of QF:

By:_____
Name: _____
Title: _____
Date: _____

APPENDIX F

CERTIFICATION OF WHETHER THE AGREEMENT WILL REQUIRE DECONSOLIDATION BY QF WITH RESPECT TO VARIABLE INTEREST ENTITY

AGREEMENT – Contract for the Purchase of Energy from a Qualifying Facility dated _____ ___, 20__ between Alabama Power Company ("Alabama Power"), and _____ ("QF") (the "Agreement"). Capitalized terms used herein shall have the meaning assigned in the Agreement.

The undersigned individual, being the Chief Financial Officer of QF and having responsibilities for financial accounting matters associated with the Agreement, hereby certifies that [at the time of the execution of the Agreement][for the calendar year ending December 31, _____], the Agreement WILL (_____)/WILL NOT (_____) require the QF, [at the time of the execution of the Agreement] [at any time over the calendar year covered by this certification], to deconsolidate on its books and records any assets, liabilities, cash flow, profits or losses of QF as a result of the Alabama Power being determined to be the primary beneficiary. My determination of the most likely accounting treatment of this transaction results from my personal consideration after necessary discussions with relevant officers of Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 810 Consolidation (formerly FASB Interpretation Number 46(R), Consolidation of Variable Interest Entities) (FASB ASC Topic 810) as modified from time to time, and the following factual matters:

QF's accounting policies, procedures, and internal controls are sufficient to provide us with an appropriate basis for confirming the information contained herein.

_____Yes
_____No (please explain)

QF qualifies for one of the scope exceptions listed FASB ASC Topic 810-10-15-12 and 17.

_____Yes (please explain)
_____No (please explain)

QF is financed with equity equal to or greater than ten percent (10%) of the QF's total assets (FASB ASC Topic 810-10-25-45).

_____Yes
_____No

The Agreement revenues correlate with fluctuations in QF's operating cash flows (operating expenses).

_____Yes
_____No

The Agreement reduces variability in the fair value of QF's assets, for example by absorbing fuel or electricity price risk.

_____Yes
_____No

The Agreement term is for greater than 50% of the remaining economic life of the Facility.

_____Yes
_____No

The Agreement is for substantially all of the proposed QF's productive output.

_____Yes
_____No

Alabama Power and/or its affiliates participated significantly in the design or redesign of the QF's Facility.

_____Yes
_____No

The percentage that the Facility's fair value represents, of the fair value of the proposed QF's total assets, is approximately

_____%

The Facility is essentially the only source of payment for specified liabilities or specified other interest (there is specific debt associated with the Facility).

_____Yes
_____No

The above information (and any attachments) has been completed in full and agrees with our records as of the date hereof.

[INSERT NAME OF QF]

By: _____
Name: _____
Title: _____

Date: _____

Alabama Power

2024 Renewable Integration Study

ASTRAPÉ CONSULTING
innovation in electric system planning

2024 Renewable Integration Study

An evaluation of the integration costs of solar resources on the Southern Company System

11/19/2024

PREPARED FOR

Southern Company Services

PREPARED BY

Kevin Carden
Joel Dison
Astrapé Consulting, a part of PowerGem

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Abbreviations Used in Report

2.5G	2,500 MW
5G	5,000 MW
7.5G	7,500 MW
10G	10,000 MW
15G	15,000 MW
20G	20,000 MW
25G	25,000 MW
BESS	Battery Energy Storage Systems
CAP_{LOLE}	Capacity LOLE (a measure representing capacity shortfall events)
CT	Combustion Turbine
DG	Distributed Generation
EMC	Electric Municipal Cooperative
EUE	Expected Unserved Energy
IRP	Integrated Resource Plan
JOU	Jointly Owned Units
LOLE	Loss of Load Expectation
MEAG	The Municipal Electric Authority of Georgia
NERC	North American Electric Reliability Corporation
SERVM	Strategic Energy and Risk Valuation Model

Executive Summary

The purpose of this study is to determine the integration costs associated with a range of solar penetration scenarios on the Southern Company system, including scenarios representing the existing and committed solar resources on the system. The intermittent nature of solar resources creates unexpected swings in the momentary net demand on the system, which must be met using the inherent flexibility of the system, especially the flexibility associated with available operating reserves. If these unexpected swings in net demand become greater than the system's inherent ability to manage through its existing operating reserve profile, the result will be the inability of the system to meet NERC operating standard requirements. The integration costs identified by this study represent those costs associated with any increase in operating reserves necessary to make sure the Southern Company system maintains its ability to meet those reliability standard requirements.

The table below indicates the 5 solar penetration scenarios considered.

Table 1. Base Case Solar Penetration Scenarios

Scenario	Solar Penetration
1	7,500 MW
2	10,000 MW
3	15,000 MW
4	20,000 MW
5	25,000 MW

In addition, the study considered how the addition of Battery Energy Storage System (BESS) resources would impact the ability of the system to integrate solar resources. The benefit associated with the addition of these resources was translated into a BESS flexibility credit and was not assumed to reduce solar integration costs. Two levels of BESS penetration were considered. First, BESS penetrations equivalent to 15% of the Base Case solar tranches were considered as indicated in the table below.

Table 2. 15% BESS Penetration Scenarios

Scenario	Solar MW	BESS MW
1	7,500	1,125
2	10,000	1,500
3	15,000	2,250
4	20,000	3,000
5	25,000	3,750

Second, each scenario was then evaluated to determine the penetration of BESS resources necessary to reduce the number of flexibility violations (Flex Violations) to the original, no-solar benchmark. This breakeven penetration assumed that as BESS resources are added to the system, at least one hour of storage will be held in reserve for use in managing renewable integration issues. This level of penetration represents the maximum flexibility credit (in dollars) available to the BESS resources at those solar penetration levels.

The three tables below reflect the results of the analysis for each of the 5 scenarios in each of the 3 portfolio groups - the Base Case (i.e., solar only) portfolio group, the solar plus 15% BESS portfolio group, and the solar plus BESS penetration necessary to return the system to no-solar Flex Violation levels, respectively. A graphical representation follows each table, with results extrapolated down to 2.5 GW.

Table 3. Base Case Mitigation Costs

Scenario	Solar MW	Mitigation Cost ($/MWH)
1	7,500	2.29
2	10,000	2.53
3	15,000	2.95
4	20,000	3.27
5	25,000	3.50

An additional 6th scenario was run at 5 GW, but a mitigation cost could not be directly determined due to several factors. However, the figure below shows integration costs extrapolated down to 2.5 GW. See Section 4.1 for more details.

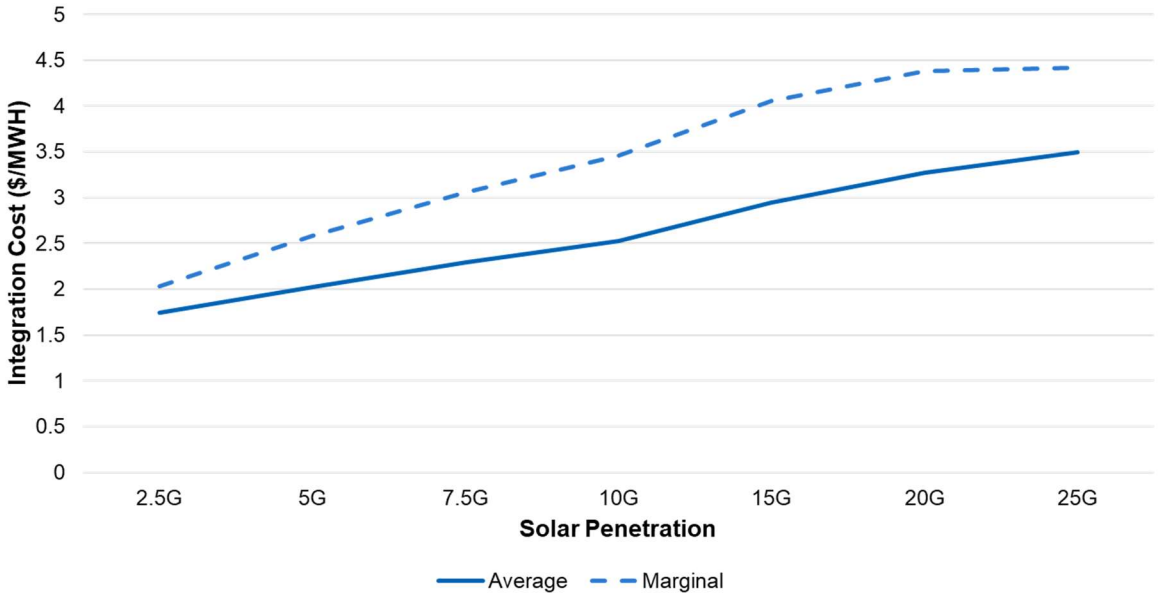

Figure 1. Base Case Integration Costs

Table 4. 15% BESS Case Flexibility Credits

Scenario	Solar MW	BESS MW	Flex Credit ($/Kw-Yr)
1	7,500	1,125	27.31
2	10,000	1,500	33.00
3	15,000	2,250	44.23
4	20,000	3,000	49.11
5	25,000	3,750	52.53

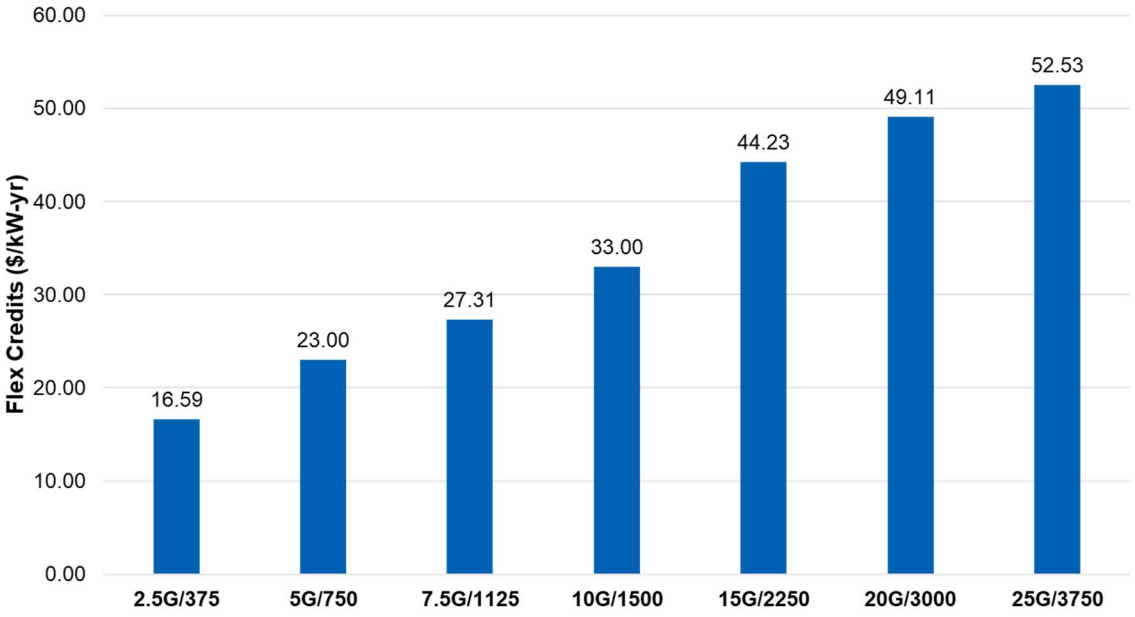

Figure 2. BESS Case Flexibility Credits

Table 5. BESS Breakeven Penetration Levels

Scenario	Solar MW	BESS MW	Flex Credit ($/kW-Yr)
1	7,500	1,500	25.72
2	10,000	1,700	33.48
3	15,000	2,200	45.24
4	20,000	2,500	58.93
5	25,000	2,600	75.77

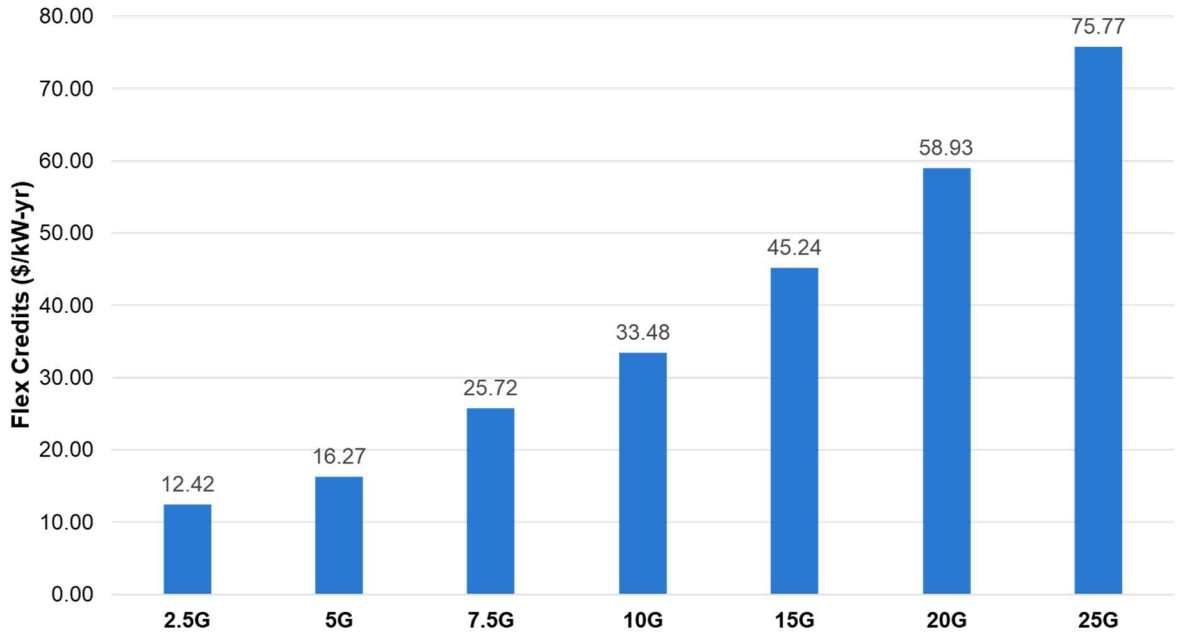

Figure 3. BESS Breakeven Case Flexibility Credits

While the breakeven BESS flexibility credits represent the maximum dollar flexibility benefit, it may not necessarily represent the maximum $/kW-yr benefit.

Using these analyses, a tool was developed and provided to Southern Company that provides average and marginal solar integration costs and BESS flexibility credits for any combination of solar and BESS resources up to the maximum of 25,000 MW of solar and 2,500 MW of BESS resources. However, BESS resources above the breakeven penetrations identified above result in a declining flexibility credit as no additional dollars of benefit are achieved and thus the maximum dollar benefit is being spread across more MW of BESS resources. This manifests itself in the tool as a zero marginal flexibility credit.

In addition to the above sets of scenarios, a wind sensitivity that looked at the incremental integration cost of a 1,000 MW tranche of wind was also performed. The wind sensitivity, which was evaluated assuming 10 GW of underlying solar, indicated no increase in mitigation cost. While a wind-only analysis may have resulted in non-zero integration costs, these results, reinforce the synergistic relationship between solar and wind.

Table 6. Sensitivity Results

Sensitivity	Mitigation Cost ($/MWH)
Wind	No Incremental Cost

1. Scope of Analysis

The analysis associated with this study involved the evaluation of the integration costs of five different scenarios, representing tranches of solar penetration as follows:

Table 7. Solar Penetration Scenarios

Scenario	Solar Penetration
1	7,500 MW
2	10,000 MW
3	15,000 MW
4	20,000 MW
5	25,000 MW

Each of these solar penetration scenarios would be compared against a reference case containing no solar resources. Two reliability criteria were established for the study:

The first reliability criterion was a Loss of Load Expectation (LOLE) for capacity (CAP_{LOLE}) of ~0.1 days/year. This criterion was established to ensure comparability. All the scenarios as well as the Base Case were calibrated to the same level of reliability, specifically a CAP_{LOLE} of ~0.1 days/year. The Case Development section describes how this was subsequently determined.

The second reliability criterion was a measure of the intra-hour flexibility of a given system, measured in terms of flexibility violations. A Flex Violation benchmark was established to determine the integration cost for each renewable tranche. This represented the primary analysis for the study, with the flexibility for each of the solar penetration scenarios benchmarked to the Flex Violation levels established in the no-solar reference case. The Study Methodology section describes how this benchmarking was accomplished and how the resulting integration cost was determined.

In addition to the integration costs for each of the five solar penetrations, flexibility credits were calculated for five levels of BESS resources – one for each of the five solar tranches – with BESS penetrations corresponding to 15% of the solar tranche penetration. The following table shows the BESS penetration for each of the five solar tranches.

Table 8. 15% BESS Penetration Scenarios

Scenario	Solar MW	BESS MW
1	7,500	1,125
2	10,000	1,500
3	15,000	2,250
4	20,000	3,000
5	25,000	3,750

In addition to the 15% of solar tranche penetrations, each BESS scenario was then evaluated to determine the penetration of BESS resources necessary to reduce the number of Flex Violations to the original, no-solar benchmark. This breakeven penetration assumed that as BESS resources are added to the system, at least one hour of storage will be held in reserve for use in managing renewable integration issues. This level of penetration represents the maximum flexibility credit (in dollars) available to the BESS resources at those solar penetration levels.

Additionally, the study included a wind sensitivity analysis on the incremental cost of integrating 1,000 MW of wind with 10 GW of underlying solar.

2. Case Development

The following sections describe the process used to develop the Base Case and solar penetration scenarios. The Strategic Energy and Risk Valuation Model (SERVM) was utilized for this study. The SERVM model used for this study is the same model used for resource adequacy evaluations performed by Astrapé for utilities nation-wide including (among others) such utilities as

The Tennessee Valley Authority (TVA),
Duke Energy,
Louisville Gas and Electric,
Pacific Gas and Electric (PGE),
Ameren Corporation,
DTE Energy,
Xcel Energy, and
Public Service Company of New Mexico (PNM).

2.1. The Base Case

The starting point for the development of the Base Case was the Southern Company 2024 SERVM base case provided by Southern. To prepare this base case for the solar integration analysis, all solar and BESS resources were removed from the case.

To ensure the proper identification of integration costs without dilution from interactions with outside entities, the Southern Company base case was evaluated as an islanded system, which included the joint dispatch of Southern Company generation resources with firm commitments to serve Southern Company load. Since they are a partial requirements customer that is served in part by Southern Company resources and thus can impact the availability of resources needed to meet flexibility requirements, the analysis also included the joint dispatch of resources owned by the Municipal Electric Authority of Georgia (MEAG). This included both jointly owned units (JOU) dispatched by Southern on MEAG's behalf and units owned and dispatched by MEAG itself.[1]

Southern Company's operating reserve requirements (and thus the ancillary service values in the base case provided by Southern Company) are contingent upon the number of solar resources on the system. Removing the solar also required appropriately adjusting the ancillary services to levels reflecting no solar resources on the system.

The following table shows the ancillary services modeled in the Base Case.

[1] There are several Combustion Turbine (CT) resources committed to Southern Company load but owned and operated by certain Electric Municipal Cooperatives (EMC) in Georgia which can only be called upon on a day-ahead basis during the winter months. This commitment constraint was modeled in SERVM.

Table 9. Base Case Ancillary Services

Ancillary Service	Value
Regulating Reserves Requirement	500 MW
Spinning Reserves Requirement	750 MW
Quick Start Reserves Requirement	500 MW
Load Following Reserves Target	1% of Load

The no-solar reference case was then simulated for the 2028 study year using weather years representing historical weather from 1973-2022 to establish its inherent reliability at a target 0.1 days/year LOLE. Generic Combustion Turbine (CT) resources were added until the target reliability was met. Because of inherit intra-hour vs. hourly peak load differences, the reliability of the system was also verified on an intra-hour basis and adjustments to capacity were made as appropriate to ensure LOLE remained at approximately 0.1 days/year.

2.2. Solar Scenarios

Each of the resulting scenarios were created via the following three step process:

1. Creating the solar resources and adding them to the case
2. Creating the intra-hour solar volatility parameters and incorporating them into the appropriate solar group
3. Benchmarking the resulting case back to a CAP_{LOLE} of ~0.1 days/year

The following describes each of those three steps for the five solar penetration scenarios.

2.2.1. Solar Resource Additions

The base case database provided by Southern Company contained a total of 71 active solar resources in the study year, which together represented approximately 4,488 MW of solar capacity. Several of these modeled resources included an aggregation of a geographically diverse set of aggregated distributed generator (DG) solar resources. Together, these resources are reasonably representative of the future geographic diversity that could be expected on the Southern Company system. Therefore, each of the solar scenarios were created by scaling the capacity of these resources until the total capacity of the portfolio reached the desired tranche size. A list of these resources can be found in Appendix A.

2.2.2. Intra-Hour Solar Volatility Parameters

To develop the intra-hour solar volatility parameters, it was necessary to develop a series of aggregate 5-minute solar profiles for one year for each tranche of solar. These profiles were provided to Astrapé by Southern Company Services. To develop these profiles, Southern Company Services used the NREL

NSRDB[2] 5-minute data and pvlib[3] to model the 5-minute solar volatility profiles for use in this study. A demonstration of this workflow is available in an open-source code repository[4] using solar plant locations and specifications from EIA data. The final volatility profiles provided to Astrapé included a diverse set of plant locations and specifications based on current, online resources and interconnection applications.

These 5-minute profiles were then imported into SERVM to create an associated divergence profile (i.e., the frequency at which a given level of divergence from the smooth profile would occur). SERVM then applies volatility parameters established from those divergence profiles to create intra-hour solar output from the hourly solar profiles for each weather year. The figure below shows the divergence profile for each of the five of the five solar penetration scenarios.

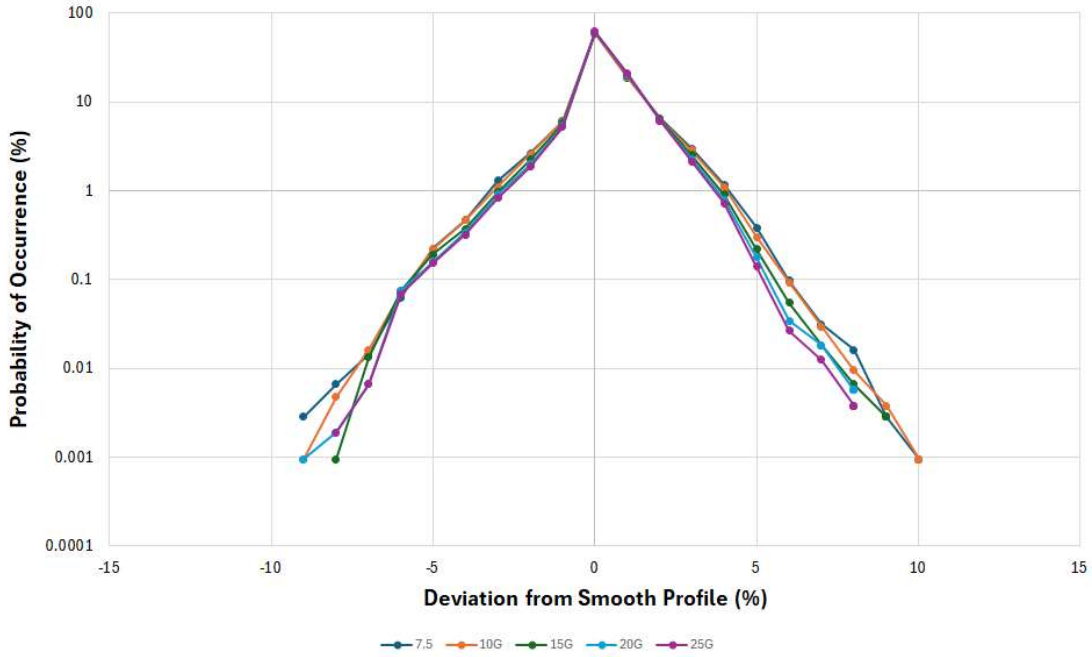

Figure 4. Solar Volatility Divergence Profiles

Another way to view the volatility data is to look at a given probability of occurrence and compare the divergence at that probability of occurrence. The graph below shows the 95th percentile of divergence for each solar tranche and can be interpreted as follows: 95% of all observations are at or below the percent deviation indicated by the curve.

[2] https://nsrdb.nrel.gov/

[3] Anderson, K., Hansen, C., Holmgren, W., Jensen, A., Mikofski, M., and Driesse, A. "pvlib python: 2023 project update." Journal of Open Source Software, 8(92), 5994, (2023). https://doi.org/10.21105/joss.05994

[4] https://github.com/williamhobbs/solar-fleet-subhourly-modeling

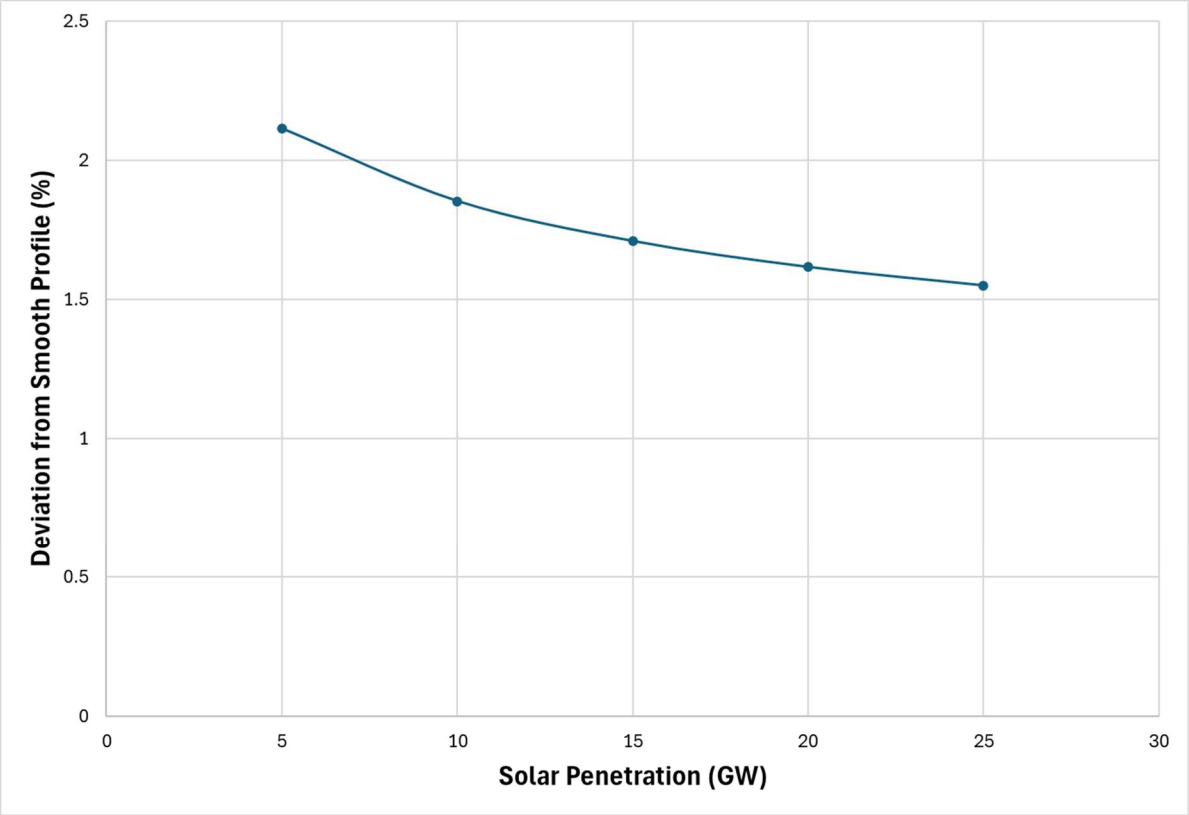

Figure 5. 95th Percentile of Solar Volatility

2.2.3. Benchmarking LOLE

To ensure each of the 6 solar scenarios had a starting point capacity reliability that was comparable to the no-solar reference case, CT resources were removed until the reliability of the system returned to 0.1 days/year LOLE.

2.3. BESS Scenarios

The BESS resources were modeled as a series of 250 MW resources to achieve the desired portfolio size for each scenario, each containing the following parameters:

Table 10. BESS Modeling Parameters

Parameter	Value
Dispatch Capacity	250 MW
Charging Capacity	250 MW
Minimum Dispatch Capacity	0 MW
Minimum Charge Capacity	0 MW
Cycle Efficiency	0.85
Storage Size	2 Hours
Quick Start Capability	Yes
AGC Capability	Yes
Target Storage Level	50%
Reliability Dispatch Price	$1000/MWH

The 2-hour storage size was assumed to model a resource that is responsive for purposes of providing flexibility benefit. By setting the target storage level to 50%, the BESS resource is assured to always have one hour of upward flexibility and one hour of downward flexibility available except when deployed for flexibility or reliability purposes. These parameters are further assumed based on the expectations that regardless of the size, storage capability, or reason that BESS resources would be added to the system, they would always be operated in such a way as to preserve at least one hour of storage capability for reliability and flexibility purposes.

The addition of BESS resources resulted in a lowering of the LOLE, which had to be returned to 0.1 days/year with the removal of additional CT resources as necessary.

2.4. Wind Sensitivity

This sensitivity was performed by adding 1,000 MW of wind resources to the 10 GW solar scenario. Wind volatility data was provided by Southern Company. Wind integration cost would be determined by comparing the mitigation cost of this sensitivity to the 10 GW solar only scenario.

3. Study Methodology

The following describes the procedure used to calculate the integration cost for each of the solar penetration scenarios.

3.1. Establish Flex Violation Benchmark Target

The Flex Violation benchmark is a measure of the intra-hour flexibility of a given system. Computationally it is calculated based on days in which the system was unable to balance load and resources plus the required level of regulating and spinning reserve listed in table 9 for 5 minutes or longer. However, because of the frequency bias and response of the interconnect, a flexibility violation event does not likely represent an actual loss of load. Rather, such an event represents negative pressure on the system's ability to meet NERC Reliability Standard BAL-001-2. Therefore, the Flex Violation metric should not be interpreted as actual outage conditions, but rather as a measure of the ability of the system to manage flexibility. An increase in the flexibility metric equates to a deterioration of the system's ability to manage unexpected deviations in load or resource availability on a 5-minute basis.

The philosophical approach taken in this analysis was to ensure that the integration of solar resources will not create negative pressure on the Southern Company System's ability to meet NERC Reliability Standard BAL-001-2 beyond that which would exist in the system without the presence of the solar resources. While SERVM does not model the moment-to-moment fluctuations in the system and thus cannot quantify Area Control Error (ACE), the challenges with balancing load and generation on a 5-minute basis in the simulations are expected to be correlated with actual violations of ACE limits, which in turn contribute towards the limits established by the NERC standard. As such, the Flex Violation benchmark target was established based on the Flex Violations in the no-solar reference case, which had a Flex Violation metric of 2.02 days/year. Recognizing that the current system and operating guidelines produce compliance with the NERC standard, configuring the simulations to maintain a similar level of flexibility violations ensures the ability to maintain compliance in the future.

As part of the evaluation, each intra-hour Flex Violation and its associated energy deficit (measured in MWh) was captured and converted into a 12x24 matrix representing the expected 24-hour profile of intra-hour flexibility-based energy deficit for each of the 12 months of the year (i.e., the weighted summation of all deficient energy in that hour of the month/year). Each instance of energy deficit contributes towards the Flex Violation metric. Thus, mitigating short duration energy deficiencies is the mechanism by which Flex Violations are mitigated. The 12x24 matrix of intra-hour energy deficiencies described above was therefore used to help establish the time periods in which mitigation was necessary as described in the steps below.

3.2. Determine Pre-Mitigation Cost/Reliability Parameters

To determine the integration cost of a given solar penetration scenario, it was first necessary to establish the pre-mitigation cost and reliability parameters of each scenario. Specifically, the pre-mitigation total production cost and the pre-mitigation Flex Violations were established. Other metrics, such as generation curtailment and average load following supplied per hour were also kept. SERVM models curtailment whenever load plus required operating reserves are above the combined minimum dispatch levels of all online generation. The addition of solar resources can increase the frequency and magnitude of such generation curtailment. Lower net load periods and more volatile net load periods associated with increased solar penetration make committing dispatchable resources to follow net load more challenging and result in curtailment. Also, since mitigating solar volatility can include committing more resources, managing flexibility violations can also contribute to system curtailment. Thus, both the solar resources themselves and the actions taken to mitigate flexibility violations associated with those resources contribute to greater risks of generation curtailment.

In addition, each intra-hour failure to balance load and resource and the associated energy deficiencies were captured and converted into a 12x24 matrix like that established for the no-solar reference case. These were used to identify which hours of the year to target for potential mitigation efforts.

3.3. Establish Mitigation Impact Profile

Using the no-solar reference case and scenario case 12x24 profiles of intra-hour energy deficiencies, a mitigation impact profile was developed by directly comparing the reference case intra-hour 12x24 energy deficiency profile to the scenario intra-hour 12x24 energy deficiency profile. Each hour of the reference case profile was subtracted from the scenario profile. The resulting differences represented those periods of time in which additional load following reserves would be necessary. The table below is a theoretical example of such a resulting impact profile but does not necessarily represent any specific result of this analysis.

Table 11. Example Mitigation Impact Profile (MWH)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-3.0008	0.0043	-0.0028	0.0001	0.0000	-0.0003	0.0001	-0.0001	0.0003	0.0000	-0.0022	-0.0120
2	-2.6591	-0.0050	0.0000	-0.0017	0.0000	-0.0011	-0.0007	-0.0004	-0.0002	0.0000	-0.0025	-0.0412
3	-2.3905	0.0073	-0.0088	-0.0013	0.0000	0.0000	0.0000	0.0000	0.0008	0.0004	0.0030	-0.0183
4	-2.2079	-0.0135	0.0064	0.0001	0.0001	-0.0004	0.0001	0.0000	0.0000	0.0002	-0.0007	-0.0295
5	-1.8741	0.0145	-0.0053	-0.0002	0.0000	0.0000	0.0001	0.0001	0.0007	0.0017	0.0116	-0.4218
6	-4.2321	1.0004	0.9629	4.0794	-0.0001	0.0001	-0.0001	0.0004	0.0001	0.0024	0.0497	-2.6547
7	17.0272	18.9612	1.7999	8.0442	1.8950	4.2663	1.5459	3.6248	3.9624	0.0941	6.4407	10.3837
8	-20.6181	0.2071	8.5723	5.6170	9.5732	11.1359	9.4757	5.0587	2.0262	1.9007	5.0079	-15.4735
9	-0.3605	15.6943	13.8156	14.4085	10.3937	12.9639	10.6178	17.0307	15.3055	17.2458	22.2320	7.4595
10	13.8961	12.6636	20.3337	13.9755	10.0020	12.9780	11.6073	13.7942	16.4349	23.8452	22.4838	22.5637
11	15.5003	11.7171	13.6940	15.2912	10.2445	10.5008	11.3545	16.9025	22.0246	22.3852	25.1188	22.1115
12	14.4022	12.4321	15.7884	12.3969	6.8152	14.3371	21.4864	21.2722	25.4365	26.3955	23.8192	26.2218
13	17.0178	11.5320	16.0676	14.5210	12.8210	16.6723	22.0799	29.7073	37.2491	40.6554	26.3910	25.3561
14	17.2820	12.2459	20.0516	16.8976	16.4066	18.0471	21.0825	24.9587	30.6296	47.3170	36.5121	29.5264
15	21.0770	19.2121	32.1130	29.6088	30.4855	12.8262	1.4458	1.0622	18.4848	65.8624	55.5169	34.0248
16	59.4229	32.3875	57.6249	53.3043	60.1825	22.0744	16.0114	13.5603	38.3529	117.4903	125.5923	98.0054
17	233.7938	83.9908	118.5690	107.0683	93.8272	92.2546	102.1988	104.7991	138.7466	266.2103	277.3071	199.2402
18	2.3278	24.0072	331.3342	209.9197	148.0946	178.3835	208.0115	219.5424	245.9093	391.3762	19.7670	0.0029
19	-1.6175	1.0270	117.0172	236.3840	234.8780	280.0116	308.0905	423.2109	273.1384	1.0866	0.0192	-0.0573
20	-1.8400	-0.0021	0.0008	-0.0003	4.4444	83.2303	54.8675	13.2893	2.5239	-0.0002	0.0096	-0.0699
21	-1.9390	-0.0125	-0.0012	-0.0005	0.0001	0.2939	0.6729	0.1586	0.0101	0.0025	0.0089	-0.0911
22	-2.0953	0.0002	0.0038	0.0002	0.0001	-0.0013	0.0007	0.0000	0.0001	0.0013	-0.0013	-0.0486
23	-3.2541	0.0066	-0.0034	-0.0002	0.0000	0.0001	-0.0001	0.0000	0.0003	-0.0001	-0.0002	-0.0004
24	-3.1062	-0.0106	0.0001	0.0000	0.0000	-0.0001	0.0000	0.0000	0.0000	0.0000	-0.0024	-0.0026

The values in the table are MWH values representing the difference in the intra-hour energy deficiencies between the solar penetration scenario and the reference case, and therefore, the table can be understood as the increase in flexibility violations caused by the solar penetration scenario. The magnitude of energy deficiency in the table is correlated to the amount of mitigation that may be necessary to return the system back to reference case reliability conditions. Higher levels of energy deficiency would therefore require greater levels of operating reserves to mitigate the flexibility violations, as described in the next section below.

3.4. Mitigation Using Load Following Reserves

The three primary types of operating reserves modeled in SERVM are regulating reserves, contingency reserves (including spinning reserves and quick start reserves) and load following reserves.

Regulating reserves are generally used to manage the moment-to-moment fluctuations on the system caused by momentary changes in load but would also include the type of moment-to-moment fluctuations that may be caused by intermittent resources such as solar. Regulating reserves are always online and ready to be deployed as needed.

Contingency reserves are used to recover from the sudden loss of a generation resource resulting from a forced outage. Contingency reserves are often split into spinning reserves (i.e., those that are online are ready to dispatch at a moment's notice) and quick start reserves (i.e., those that are not online but can be brought online at a moment's notice).

Load following reserves represent the amount of additional spinning reserves that are available on an hourly basis to manage the change in load from hour to hour due to commitment decisions made to serve load during the peak of the day.

For purposes of this analysis, load following reserves were used to determine the amount of mitigation necessary to return the reliability of the system to Base Case conditions. Load following reserve targets for the no-solar reference case were set at 1% of load.

As solar penetration increases, the level of intra-hour Flex Violations also increases. To mitigate the increase in Flex Violations, load following reserves were iteratively increased in hours containing intra-hour energy deficiencies until the system returned as closely as possible to the Base Case Flex Violation benchmark of 2.02 days/year. Each new iteration required the calculation of a new mitigation impact profile and subsequent adjustments to the load following reserve targets in each hour. Hours with higher levels of incremental energy deficiencies would necessarily require higher levels of load following. The figure below demonstrates this iterative process.

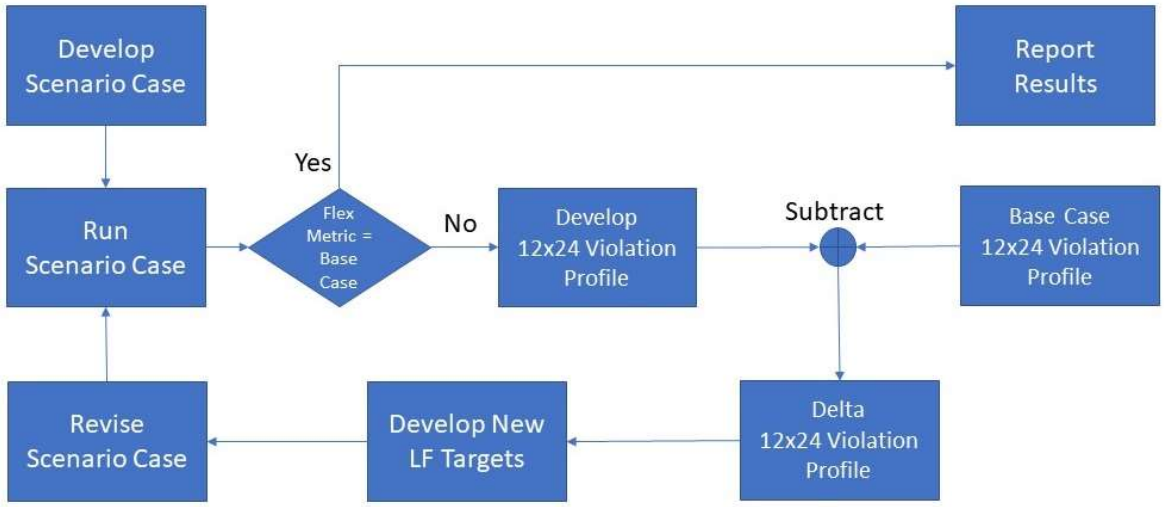

Figure 6. Mitigation Flowchart

The table below shows a theoretical example of the resulting 12x24 load following profile that may result from this process. The table shows the amount of additional MW above the 1% of load reference case load following targets that would need to be followed in each hour of the respective month to ensure adequate intra-hour flexibility.

Table 12. Example Load Following Target Profile (MW)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00
2	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00
3	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00
4	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00
5	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00
6	1250.00	1500.00	1500.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00
7	1250.00	1500.00	1500.00	1500.00	1500.00	1500.00	1250.00	1250.00	1250.00	1500.00	1250.00	1250.00
8	1250.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1250.00
9	1250.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1250.00
10	1250.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1250.00
11	1250.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1250.00
12	1250.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00
13	1500.00	1500.00	1500.00	1500.00	1500.00	1250.00	1250.00	1250.00	1250.00	1500.00	1500.00	1500.00
14	1500.00	1500.00	1500.00	1500.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1500.00	1500.00
15	1500.00	1500.00	1500.00	1500.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1500.00	2000.00
16	2000.00	1500.00	1500.00	1500.00	1500.00	1250.00	1250.00	1250.00	1250.00	2000.00	2500.00	2500.00
17	2500.00	2500.00	2500.00	2500.00	2500.00	2000.00	2000.00	2000.00	2000.00	2500.00	2500.00	2500.00
18	1250.00	1500.00	2500.00	2500.00	2500.00	2000.00	2000.00	2000.00	2000.00	2500.00	1500.00	1250.00
19	1250.00	1250.00	2500.00	2500.00	2500.00	2000.00	2000.00	2500.00	2500.00	2500.00	1250.00	1250.00
20	1250.00	1250.00	1250.00	1250.00	1500.00	2500.00	2500.00	2500.00	1500.00	1250.00	1250.00	1250.00
21	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1500.00	1500.00	1250.00	1250.00	1250.00	1250.00
22	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00
23	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00
24	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00	1250.00

It should be noted that this process is not automated and requires engineering judgment as to the amount and timing of the load following reserves added to the system. There are numerous combinations of load following reserve targets that could each result in a mitigated system. While effort was taken to optimize the mitigation profile to the greatest extent possible, there is no way to ensure the final mitigated system represents the optimal solution. As such, results were trended and smoothed to minimize any inconsistencies between scenarios that may result associated with this iterative approach. An initial smoothing was performed from the raw results to be used in the battery flexibility cost calculations (see Section 3.6 below), and then a final smoothing was performed after the battery flexibility and battery breakeven analyses were performed (see Section 3.8 below).

3.5. Integration Cost Calculations

Once the mitigated system achieved Flex Violations of approximately equal to the no-solar reference case, the mitigation cost could be determined in accordance with the following equation:

$$SMC = (TPC_{post} - TPC_{pre})/MWH_{scenario}$$

Where,

SMC ≡ Scenario Mitigation Cost in $/MWH,
TPC_{post} ≡ Total Production Cost of the Scenario post mitigation,

TPC_{pre} ≡ Total Production Cost of the Scenario pre mitigation, and
$MWH_{scenario}$ ≡ The megawatt hours of solar generation associated with the scenario.

This SMC value represents the cost of the required increase in load following reserves. The costs associated with increases in curtailment are implicitly included in these calculations since the production costs associated with the additional energy that was generated but did not serve load are included in TPC_{post}.

3.6. Battery Flexibility Credit Calculations

The same mitigation process was used for the battery scenarios as was used for the solar scenarios. While BESS technology portfolios are very flexible resources and improve the response of the system, the addition of these technologies may still require an increase in load following reserves to return the Flex Violations to reference case levels. However, the amount of mitigation required with BESS resources on the system would be reduced. The savings associated with that reduction can then be translated into a Flexibility Credit for those BESS resources.

Once the BESS scenarios are mitigated so that they achieve Flex Violations consistent with the no solar reference case, the flexibility credit could be determined in accordance with the following equation:

$$BFC = (SMC_{solar} – MC_{BESS})/KW_{BESS}$$

Where,

BFC ≡ Battery Flexibility Credit in $/kW-Year,
SMC_{solar} ≡ Mitigation cost, in dollars, of the solar only scenario containing the same amount of solar penetration as the BESS scenario,
MC_{BESS} ≡ Mitigation cost, in dollars, of the BESS scenario,
KW_{BESS} ≡ The kilowatts of BESS in the BESS scenario.

In the above equation, SMC_{solar} represents the initial, preliminary smoothed mitigation costs rather than the raw mitigation costs.

3.7. Battery Breakeven Analysis

In addition to the 15% of solar penetration BESS scenarios, BESS scenarios were also run to determine the point at which the batteries alone, with no additional load following, would reduce the Flex Violations to those consistent with the no-solar reference case. This would represent the maximum amount of mitigation benefit (in dollars) that could be achieved via adding BESS resources. While adding more BESS resources than this breakeven level may further increase the flexibility capability of

the system, it would not provide any incremental solar integration cost benefit because it would represent a condition that is more flexible than the no-solar benchmark.

This breakeven amount was determined by iteratively adding (or removing) BESS resources until the Flex Violations roughly equaled the no-solar reference case Flex Violations.

3.8. Integration Cost and Battery Flexibility Credit Smoothing

With three sets of mitigation costs – preliminary smoothed solar only, BESS at 15% of solar, and BESS at no-solar breakeven Flex Violations – it is possible to perform two-dimensional trending and smoothing across both the solar and battery penetration levels. This provides two advantages to the analysis. First, it smooths any irregularities out of the average solar integration costs so that marginal costs are well behaved. Second, it provides for the ability to develop a "dense matrix" of solar integration and battery flexibility credit costs so that both integration costs and battery flexibility credits could be determined for any combination of solar and battery penetrations. Without this two-dimensional smoothing process, it would be difficult to easily interpolate between the discreet scenarios evaluated and obtain well-behaved average and marginal costs.

The trending and smoothing process was accomplished using the following steps:

1. Known mitigation costs (in dollars) for the solar only results were trended.
2. Trended mitigation cost results from step 1 above were trended along the BESS penetration axis so that mitigation results could be calculated for a greater granularity of BESS penetrations. Each solar penetration level was trended independently.
3. Trended results from step 2 above were then trended along the solar penetration axis and results for a greater granularity of solar penetrations was determined. Each BESS penetration level was trended independently.
4. Results from step 3 above were trended again along the BESS axis, with each penetration of solar being trended independently.
5. Results from step 4 above were trended again along the solar axis with each penetration of BESs being trended independently.
6. Using the results from step 5 above, solar integration and battery flexibility credits were determined as follows:
    a. Smoothed mitigation costs at zero BESS penetration were divided by MWH of solar energy to get solar integration costs, and
    b. Smoothed mitigation costs for non-zero BESS penetrations were all subtracted from the zero BESS penetration mitigation costs to determine the reduction in mitigation costs, which was then divided by the kilowatts of battery penetration to get the flexibility credit.

4. Results

The results from each of the scenarios for each of the three analyses (solar only, 15% BESS penetration, BESS breakeven penetration) are detailed in the following sections. Following the discussion of the three technology portfolios is a discussion concerning the impact of the solar tranches and the associated mitigation on expected generation curtailments.

4.1. Solar Integration Costs

The first set analyses were to determine the solar integration costs assuming a system with only solar resources (i.e., no BESS resources). The table below shows the resulting integration costs for each of the five solar penetration scenarios evaluated.

Table 13. Portfolio 1 Base Case Mitigation Costs

Scenario	Solar MW	Mitigation Cost ($/MWH)
1	7,500	2.29
2	10,000	2.53
3	15,000	2.95
4	20,000	3.27
5	25,000	3.50

The figure below shows the same information graphically and includes both average and marginal integration costs.

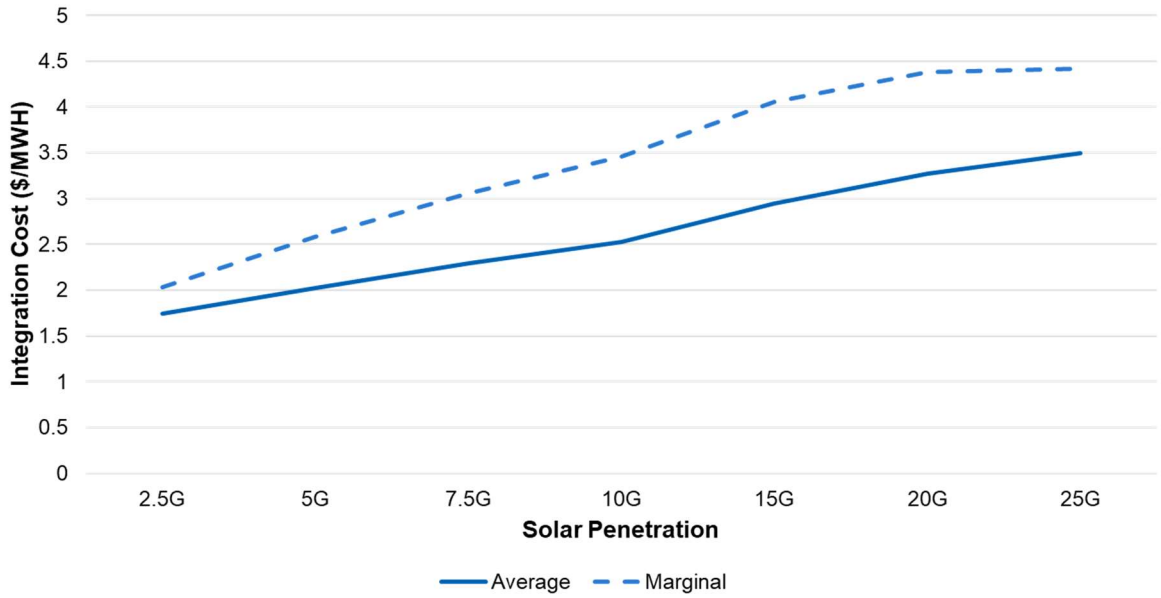

Figure 7. Portfolio 1 Mitigation Costs

It should be noted that in addition to the five solar tranches identified in Table 13 above, a sixth solar tranche was also run at 5 GW of solar. Unfortunately, the model could not resolve an integration cost for this tranche. When combined with the fact that the no-solar reference case already contained a load following requirement of 1% of load, the 5 GW solar tranche fell within the flexibility of the base case system. This does not, however, mean that the integration costs at 5 GW of solar are negligible, and solar resources should not get a "free ride" on the back of the existing system flexibility. Therefore, the appropriate way to determine these costs would be to extrapolate based on the results of the higher penetration tranches. Figure 7 above reflects this extrapolation.

The values shown in the table and figure above are the result of the post-smoothing process. The detailed integration cost calculations for pre-smoothing vs. post-smoothing for the five solar only scenarios are included in Appendix B.

As an example of the load following profiles necessary to achieve this level of mitigation, the following table shows a 12x24 heat map of the Scenario 1 (7,500 MW) Solar Only scenario load following results.

Table 14. Scenario 1 Solar Only Load Following Requirements (MW)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	250.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	750.00	500.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	750.00
8	0.00	250.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	0.00
9	0.00	250.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	0.00
10	0.00	250.00	250.00	250.00	250.00	100.00	100.00	100.00	100.00	250.00	250.00	0.00
11	0.00	250.00	250.00	250.00	250.00	100.00	100.00	100.00	100.00	250.00	250.00	0.00
12	0.00	250.00	250.00	250.00	250.00	0.00	0.00	0.00	0.00	250.00	250.00	250.00
13	250.00	250.00	250.00	250.00	250.00	0.00	0.00	0.00	0.00	0.00	250.00	500.00
14	250.00	750.00	250.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00	500.00
15	250.00	750.00	750.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	500.00
16	500.00	750.00	750.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	500.00
17	1000.00	750.00	750.00	750.00	0.00	0.00	0.00	0.00	0.00	250.00	250.00	500.00
18	100.00	250.00	500.00	750.00	250.00	0.00	0.00	0.00	0.00	750.00	250.00	500.00
19	0.00	250.00	500.00	750.00	500.00	250.00	250.00	250.00	250.00	250.00	250.00	500.00
20	0.00	250.00	0.00	0.00	0.00	250.00	250.00	250.00	0.00	250.00	250.00	100.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00	250.00	100.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

The MW represented in the table are in addition to the underlying 1% of load assumption in the no-solar reference case.

Load Following heat maps for the solar only scenarios are included in Appendix C.

4.2. 15% BESS Penetration Flexibility Credits

The second set of analyses performed determined the BESS flexibility credits assuming a battery penetration of 15% of the corresponding solar portfolio. This analysis was performed in the same manner as the solar only mitigation cost analysis except the difference in mitigation cost was translated into battery flexibility credited as shown in the table below.

Table 15. 15% BESS Penetration Flexibility Credits

Scenario	Solar MW	BESS MW	Flex Credit ($/Kw-Yr)
1	7,500	1,125	27.31
2	10,000	1,500	33.00
3	15,000	2,250	44.23
4	20,000	3,000	49.11
5	25,000	3,750	52.53

The figure below shows the same information graphically. Values below 7.5 GW of solar are extrapolated.

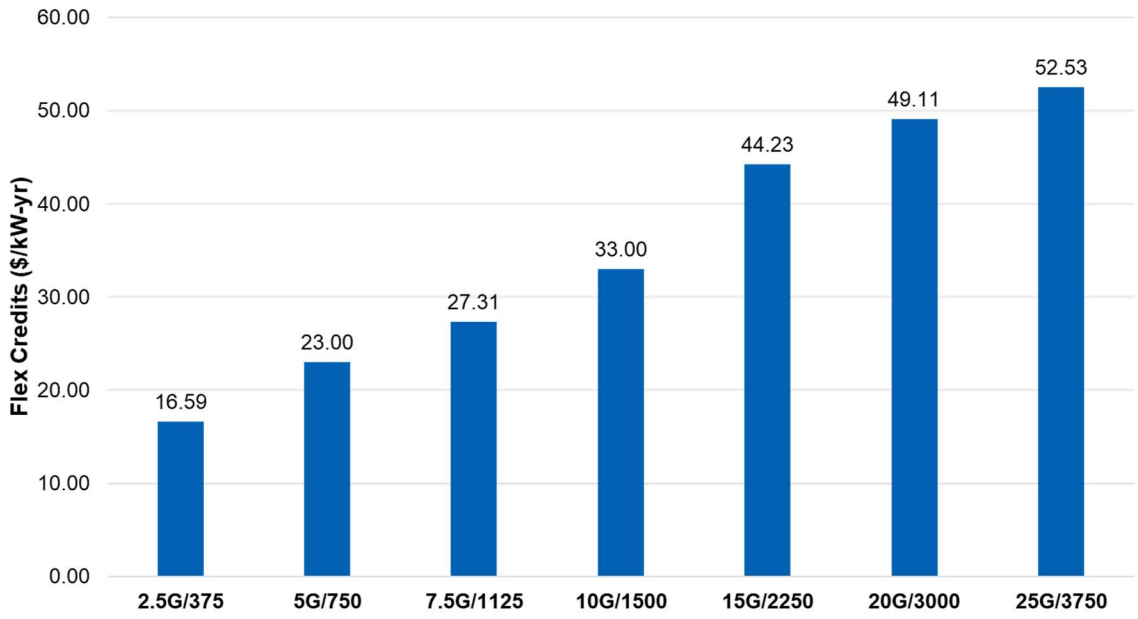

Figure 8. 15% BESS Penetration Flexibility Credits

The values shown in the table and figure above are the result of the post-smoothing process. The detailed integration cost calculations for pre-smoothing vs. post-smoothing for the five battery scenarios are included in Appendix B.

Load Following heat maps for the BESS scenarios are included in Appendix C.

4.3. BESS Breakeven Flexibility Credits

The third set of analyses was to determine the breakeven point at which BESS penetrations would return the system back to no-solar condition. This analysis was performed by adding various levels of BESS penetration to the solar scenarios until the flex violations returned to the no-solar level. The table below shows the breakeven penetrations and the resulting battery flexibility credits.

Table 16. BESS Breakeven Flexibility Credits

Scenario	Solar MW	BESS MW	Flex Credit ($/kW-Yr)
1	7,500	1,500	25.72
2	10,000	1,700	33.48
3	15,000	2,200	45.24
4	20,000	2,500	58.93
5	25,000	2,600	75.77

The figure below shows the same information graphically. Values below 7.5 GW of solar are extrapolated.

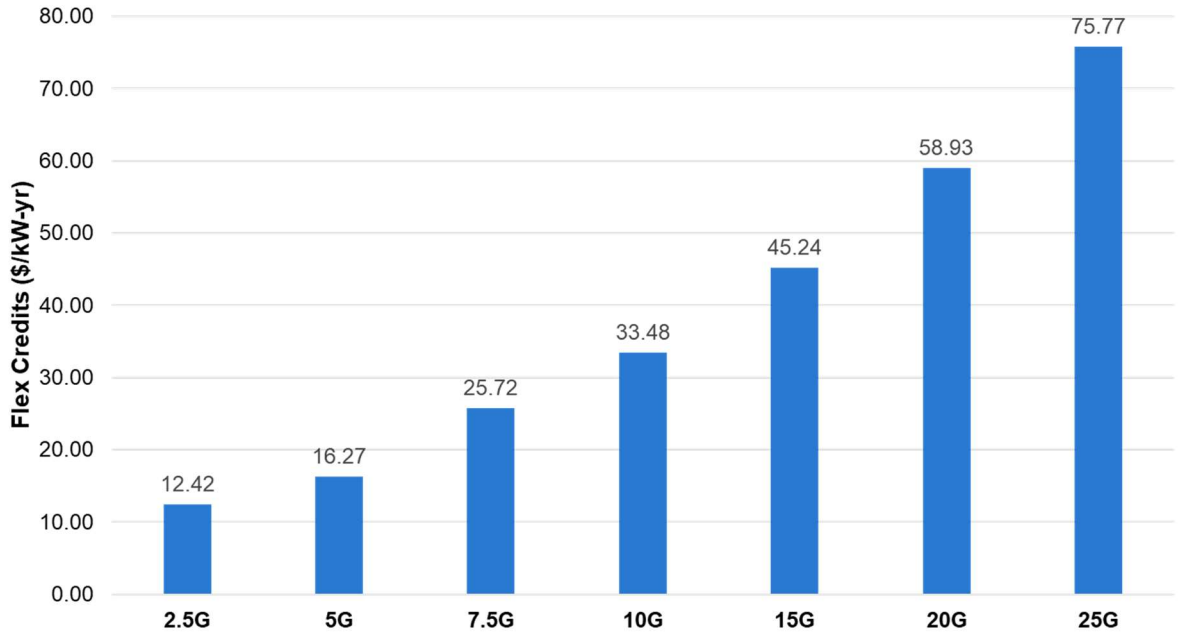

Figure 9. BESS Breakeven Flexibility Credits

As compared to the 15% BESS penetration scenario, the 15G solar penetration breakeven BESS penetration was essentially the same as the 15% penetration level. In the case of the 7.5G and 10G solar penetration levels, additional BESS resources were needed to achieve breakeven than were evaluated in the 15% penetration case. In the case of the 20G and 25G solar penetration levels, less BESS resources

were needed to achieve breakeven than the 15% case. There are two factors driving these results. Southern's current regulation + spinning reserve requirement is 1,250 MW. First, BESS is very effective at providing these ancillary services requirements and the SERVM model prioritizes ancillary services provision over flexibility support. Thus, the first 1,250 MW of BESS resources are being assigned to provide ancillary services, which is detrimental to their ability to provide flexibility support. Thus, they are less effective at doing so. Second, because of geographic diversity, solar volatility decreases on a percentile basis with increasing levels of penetration as shown in Figure 5 above. Therefore, while the MWs of volatility increases, as a percentage of nameplate capacity, the volatility is actually decreasing. Thus, a fixed 15% of nameplate solar BESS penetration means that at higher penetrations, the BESS are more effective at mitigating the solar than at lower penetrations. Therefore, above 1,250 MW of BESS capacity (i.e., past the ancillary service requirement), the BESS resources are incrementally more effective at mitigating volatility. Coincidentally, the breakeven point for the 15G solar scenario is approximately 15%. Therefore, scenarios above 15G solar require less than 15% BESS to return the system to the no-solar condition.

4.4. Integration/Flexibility Cost Tool

The results of the three sets of analyses above are, in part, influenced by the trending and smoothing of the raw SERVM results as described in Section 3.8 above. The results of that trending and smoothing also allowed for the expansion of results beyond the five discrete points evaluated and reported above. The trending and smoothing process allowed for the calculation of results for any combination of solar and BESS resources within the bounds of what was evaluated, trended, and smoothed. The figure below shows a surface plot of the BESS flexibility credits as a function of solar penetration.

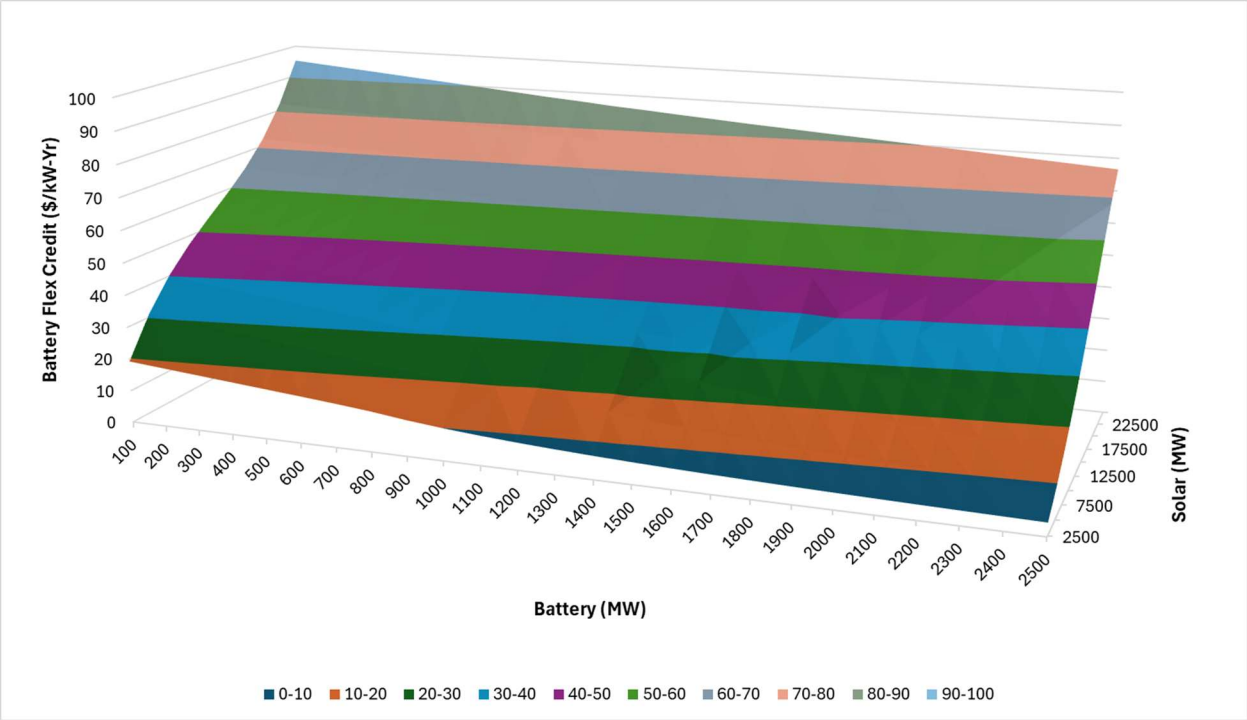

Figure 10. Battery Flexibility Credits as a Function of Solar Penetration

To find the flexibility credit for a given combination of solar and BESS penetrations, find the point at which the two points cross on the horizontal axes and then come up the vertical axis until the surface is reached to determine the flexibility credit. For example, the point at 2,500 MW of BESS and 12,500MW of solar intersect the surface in the light blue band, representing the 30-40 $/Kw-year range. A tool was developed to interpolate and find the exact point of intersection, which in this case intersects the surface 30.95 $/kW-year. The tool also provides average and marginal solar integration costs for any level of solar penetration between 2,500 MW and 25,000 MW. This tool was provided to Southern Company.

4.5. Wind Sensitivity

The addition of wind resources to a system with 10 GW of solar resulted in less mitigation cost than the system with just 10 GW of solar alone. This decrease in mitigation cost reflects the synergies associated with a portfolio that has both technologies. As with solar and storage combined, however, this does not mean that solar integration costs should be reduced. However, it likewise does not suggest that wind should get a flexibility credit. While this study did not evaluate a wind-only system, such an evaluation would reflect a non-zero integration cost. Therefore, the only conclusions that can be drawn from this analysis is that the addition of 1 GW of wind to a system that already has a significant penetration of solar will not increase integration costs and would likely benefit the system.

4.6. Observations

The following are some key observations regarding the results of the analysis.

1. The addition of solar has an impact on the flexibility needs of the system. The volatility of the net load profile after the addition of solar necessitates mitigation either through increasing load following or adding more flexible capacity or some combination of the two solutions. In an environment where not only Southern Company, but also its neighbors are increasing solar penetration, solar integration must be addressed rigorously.
2. Southern Company operates its fleet with appropriate safety margins, adhering to NERC balancing standards. There is no excess capacity to manage net load volatility via the reliance on neighboring systems. Southern Company currently increases its operating reserves to manage solar volatility.
3. While there is no industry standard for ideal levels of flexibility violations, Southern's compliance with NERC Reliability standards provides an appropriate benchmark to maintain as the resource mix changes. Adjusting the flexible capacity on the system and increasing operating reserve guidelines along with assigning the associated costs of such actions to incremental renewable energy as integration costs appropriately balances economic and reliability considerations.
4. With the new assumptions, there does not appear to be an inflection point in the solar integration costs up through 25,000 MW of solar.
5. Because of the declining per unit volatility of solar resources with increased penetrations, BESS resources have greater effectiveness at reducing flex violations at higher penetrations, but below 1,250 MW, BESS effectiveness is significantly hindered because of regulation and spin requirements. The same would be true of any flexible resource that could meet ancillary services requirements.

4.7. Impacts on Generation Curtailment

Generation curtailment is a metric that represents conditions in which load falls below a point at which the online generation is no longer able to reduce output to match load. This phenomenon is sometimes referred to as overgeneration. In the real world, this condition is remedied either by allowing frequency to slightly rise, selling excess generation to a neighboring utility, or decommitting online generation. In this study, an increase in the generation curtailment metric relative to the base case is an indication of the increased risk that such conditions will materialize in the real world as a direct consequence of the additional solar generation.

For this analysis such conditions are presumed to be mitigated by curtailing solar generation and thus not receiving the energy otherwise available from the resource. The cost of this curtailment is the direct cost of not receiving the solar energy, measured by the expected purchase price or assessed value of the solar energy. This cost is not captured in the solar integration cost analysis. However, there are two ways in which the cost of generation curtailment should be considered.

First, there is the increase in generation curtailment from the pre-mitigated case to the base case, referred to here as the Pre-Mitigated Curtailment Impact. This represents the amount of renewable generation that would not be received simply because the system mix cannot manage the day-to-day swings in net load resulting from the renewable resource. This cost should be considered in the ***initial evaluation*** of the economic value of the resource.

The second way in which generation curtailment costs should be considered is in the difference between the post-mitigated case and the pre-mitigated case for the same scenario, referred to here as the Post-Mitigated Curtailment Impact. The Post-Mitigated Curtailment Impact represents the incremental amount of solar energy that was not received because of the additional operating reserves needed to mitigate flex violation. The incremental curtailed energy must be served by other resources, resulting in an increase in production cost, which is included as part of the solar integration costs.

The tables below show the pre-mitigation and post-mitigation curtailment for the solar only scenarios. The pre-mitigation is shown incremental to the base case and the post-mitigation is shown incremental to the pre-mitigation. All values are in MWH/year

Table 17. Solar Only Curtailment Impact

Solar MW	Pre-mitigation	Post-mitigation
7,500	26,126	14,242
10,000	239,461	105,481
15,000	1,650,660	479,135
20,000	4,955,704	1,119,181
25,000	10,451,639	1,669,896

Batteries have the advantage of reducing solar curtailment as a portion of the excess solar energy can be used to maintain battery charge. The table below shows the pre-mitigation and (where applicable) post-mitigation incremental solar curtailment for the 15% BESS scenarios. The pre-mitigation is incremental to the no-solar case and the post-mitigation is incremental to the pre-mitigation case. For those scenarios where the pre-mitigation flex violations were at or below the no-solar case, no post-mitigation curtailment is available.

Table 18. 15% BESS Curtailment Impact

Solar MW	Pre-mitigation	Post-mitigation
7,500	5,120	5,160
10,000	75,255	27,218
15,000	1,222,368	
20,000	4,505,168	
25,000	9,321,178	

As an example of the timing throughout the year of when such curtailment may occur, the following table shows a heat map of the expected total system curtailment (after mitigation) for the 10,000 MW solar only scenario. The table shows the total MWHs of curtailment by hour by month for the scenario. As the heat map shows, the greatest concentration of curtailment occurs during periods of low load combined with periods of high solar output, such as during the middle of the day during spring, fall, and winter months. Other scenarios would be similar, but with varying quantities based on the level of solar penetration.

Table 19. Heat Map of MWHs of Curtailment (10,000 MW Solar Only Scenario)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.0	2.6	2.2	4.0	2.8	1.3	1.4	1.0	0.0	2.1	2.1	0.1
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.1	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1
6	0.0	0.3	0.7	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.2	0.3	27.0	64.7	31.5	1.8	0.1	0.0	0.0	2.0	2.2	0.6
8	7.9	42.2	38.5	173.3	67.2	2.1	0.2	0.4	53.0	65.0	56.0	29.3
9	3.9	17.2	71.5	180.0	131.0	5.7	0.7	0.6	9.8	18.6	55.0	8.8
10	27.8	65.2	143.7	293.8	151.8	4.0	0.4	0.3	18.1	55.3	144.8	39.6
11	83.0	158.3	226.1	328.5	100.3	1.3	0.1	0.1	11.7	69.3	234.7	96.6
12	178.9	274.3	323.4	326.9	75.9	0.5	0.0	0.0	6.9	66.8	278.7	172.1
13	276.5	378.2	358.9	301.0	52.2	0.3	0.1	0.0	4.7	59.4	289.0	245.2
14	327.6	427.8	361.6	260.6	45.2	0.2	0.0	0.0	3.6	43.0	230.7	266.5
15	250.6	327.4	275.5	190.0	30.7	0.2	0.0	0.0	2.1	22.8	102.1	166.7
16	89.4	145.1	131.3	108.9	14.7	0.1	0.0	0.0	0.8	6.5	33.9	81.2
17	5.8	43.2	65.1	47.4	7.2	0.1	0.0	0.0	0.3	1.7	0.4	0.0
18	0.1	0.9	8.0	61.4	3.5	0.1	0.0	0.0	0.2	0.2	0.0	0.0
19	0.0	0.0	0.0	2.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1

Appendix A – Solar Resources Modeled

The following tables indicate the solar resources and associated nominal capacity modeled as part of this solar integration study. Several of these modeled resources included an aggregation of a geographically diverse set of aggregated distributed generator (DG) solar resources.

Table 20. Solar Facilities Modeled

Unit Name	Capacity
Solar_2019 IRP DG	89.0
Solar_AMEA_BLACKBEAR	100.0
Solar_ANNISTON_AD	7.4
Solar_ASI Classic DG	78.2
Solar_ASI Prime DG	78.6
Solar_CB_ENERGY	3.3
Solar_CCSP_DG	25.0
Solar_CLASI_BUTLER	20.0
Solar_CLASI_DECATUR	18.9
Solar_CLASI_DUBLIN	4.1
Solar_CLASI_HECATE_OLD_MIDVILLE	20.0
Solar_CLASI_RICHLAN	20.0
Solar_CLASI_RINCON	16.0
Solar_CLASI_SOGLYNN	17.7
Solar_COMMSOLAR_COMER	2.2
Solar_COMMSOLAR_GUYTON	3.6
Solar_COMMSOLAR_WAYNESBORO	2.4
Solar_FALCONS	1.0
Solar_FORT_VALLEY_STATE	10.8
Solar_FT_BENNING	30.0
Solar_FT_GORDON_1	30.0
Solar_FT_RUCKER	10.6
Solar_FT_STEWART	30.0
Solar_GPC_LSS_HSH_PEMBROOKE	1.0
Solar_GPC_LSS_SIMON_SOLAR_FARM	30.0
Solar_GPC_LSS_SOLAR_CAMILLA	16.0
Solar_GPC_LSS_SOLAR_CAMP_MERIWETHER	3.0
Solar_HATTIESBURG_FARM	50.0
Solar_KINGS_BAY	30.2
Solar_MARINECORP_LB	31.2
Solar_MOODY_AFB	49.5
Solar_MS_SOLAR_2	52.0

Solar_ORIGIS_LAF	72.0
Solar_PRASI_BUTLER	100.0
Solar_PRASI_DECATUR	79.9
Solar_PRASI_LIVEOAK	51.0
Solar_PRASI_PAWPAW	30.0
Solar_PRASI_WHTOAK	76.5
Solar_PRASI_WHTPINE	101.3
Solar_PS_Wing_Solar	80.0
Solar_REDI DG	86.7
Solar_REDI DG CS	36.0
Solar_REDI_COOL_SPRINGS	213.0
Solar_REDI_CS2	3.0
Solar_REDI_DOUGHERTY	120.0
Solar_REDI_HICKORY_PARK	195.5
Solar_REDI_QUITMAN	150.0
Solar_REDI_QUITMAN_II	150.0
Solar_REDI_SOUTHERN_OAK_SOLAR	160.0
Solar_REDI_TANGLEWOOD	57.5
Solar_REDI_TWIGGS	200.0
Solar_ROBINS_AFB	128.0
Solar_RTOFWAY_SOLAR	0.8
Solar_SPC Cedar Creek Solar	2.0
Solar_SPC Hazelhurst 3	300.0
Solar_SPC Hazlehurst 1	20.0
Solar_SPC Middle Georgia Community Solar	1.1
Solar_SPC Sandhills_1	32.1
Solar_SPC SR Arlington	20.0
Solar_SPC SR Clay	106.0
Solar_SPC SR Perry	68.0
Solar_SPC SR Snipesville	200.0
Solar_SPC SR Snipesville III	107.0
Solar_SPC SR Terrell	200.0
Solar_SPC Tri-County Community Solar	1.1
Solar_SPC Turnipseed Solar	3.0
Solar_SR_MERIDIAN_3	52.5
Solar_UGA	1.0
Solar_US_TIMBERLAND	140.0
Solar_US_WADLEY	260.0
Solar_WALNUT_GROVE	1.3

Appendix B – Integration Cost Calculation Details

This appendix shows the integration cost details for each of the 18 scenarios evaluated. The integration costs are calculated as the increase in production cost from the pre-mitigation scenario case to the post-mitigation scenario case divided by the solar energy associated with the scenario case. As a point of reference, the no-solar reference case production cost was $6,094 million.

As described in the study methodology section above, the initial mitigation costs were calculated based on raw SERVM results. Those results were then smoothed (Preliminary Smoothed below) to provide a basis for calculating BESS flexibility credits. Along with the breakeven battery penetrations (i.e., the battery penetration required to get the system back to no-solar conditions without additional operating reserves), the solar mitigation costs and battery mitigation costs were then smoothed together to obtain the final smoothed integration costs below. The table below shows the pre-mitigation production cost, post-mitigation production cost, raw delta production cost, preliminary smoothed mitigation cost, final smoothed mitigation cost, solar generation, and resulting final integration cost for each of the five solar only scenarios.

Table 21. Base Case Integration Cost Calculations

Tranche (MW)	Pre-Mitigation Cost (M$)	Post-Mitigation Cost (M$)	Delta (M$)	Preliminary Smoothed (M$)	Final Smoothed (M$)	Solar GWH	Integration Cost $/MWH
7,500	5,414	5,447	34	39.4	38.6	16,868	2.29
10,000	5,241	5,314	73	57.9	56.9	22,491	2.53
15,000	4,961	5,054	93	99.5	98.1	33,266	2.95
20,000	4,730	4,880	150	146.3	147.1	44,991	3.27
25,000	4,505	4,694	190	197.2	196.8	56,241	3.50

As described in the study methodology section above, the preliminary smoothed solar mitigation costs were used as the basis for determining the battery flexibility credit, calculated as the difference between the mitigation cost with and without the batteries. Along with the breakeven battery penetrations and the solar mitigation costs, the BESS mitigation costs were then smoothed so that a smoothed battery flexibility credit could be determined. The table below shows the raw BESS mitigation and preliminary smoothed solar penetration used to calculate the initial battery flexibility credit. The table also shows the final, smoothed battery flexibility credit.

Table 22. 15% BESS Flexibility Credit Details

Solar (MW)	BESS (MW)	BESS Mitigation (M$)	Solar Mitigation (M$)	Flexibility Credit (M$)	Flex Credit Smoothed (M$)	Flex Credit ($/kW-Yr)
7,500	1150	41	39	-2	31	27.31
10,000	1500	21	59	37	50	33.00
15,000	2250	-	100	100	100	44.23
20,000	3000	-	146	146	147	49.11
25,000	3750	-	197	197	197	52.53

Appendix C – Load Following Heat Maps

The following tables contain heat maps reflecting the load following requirements needed to successfully mitigate the flex violations associated with the five solar only scenarios. These heat maps reflect the raw SERVM results (i.e., pre-smoothed) and thus would not be considered optimized to be consistent with the final, published integration costs. They do, however, represent a set of ancillary services profiles that achieve mitigation. Tables show the incremental MW requirement by hour over and above the no-solar requirement assumption of 1% of load.

Table 23. 7.5G Solar Only Load Following Heat Map

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	250.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	750.00	500.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	750.00
8	0.00	250.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	0.00
9	0.00	250.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00	0.00
10	0.00	250.00	250.00	250.00	250.00	100.00	100.00	100.00	100.00	250.00	250.00	0.00
11	0.00	250.00	250.00	250.00	250.00	100.00	100.00	100.00	100.00	250.00	250.00	0.00
12	0.00	250.00	250.00	250.00	250.00	0.00	0.00	0.00	0.00	250.00	250.00	250.00
13	250.00	250.00	250.00	250.00	250.00	0.00	0.00	0.00	0.00	0.00	250.00	500.00
14	250.00	750.00	250.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00	500.00
15	250.00	750.00	750.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	500.00
16	500.00	750.00	750.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	500.00
17	1000.00	750.00	750.00	750.00	0.00	0.00	0.00	0.00	0.00	250.00	250.00	500.00
18	100.00	250.00	500.00	750.00	250.00	0.00	0.00	0.00	0.00	750.00	250.00	500.00
19	0.00	250.00	500.00	750.00	500.00	250.00	250.00	250.00	250.00	250.00	250.00	500.00
20	0.00	250.00	0.00	0.00	0.00	250.00	250.00	250.00	0.00	250.00	250.00	100.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00	250.00	100.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 24. 10G Solar Only Load Following Heat Map

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	100	100	100	100	100	100	100	100	100	100	100	100
2	100	100	100	100	100	100	100	100	100	100	100	100
3	100	100	100	100	100	100	100	100	100	100	100	100
4	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100
6	100	1000	1000	500	100	100	100	100	100	100	100	100
7	1000	750	500	500	250	250	250	250	250	100	100	1000
8	100	500	500	500	500	500	500	500	500	250	250	100
9	100	500	500	500	500	500	500	500	500	500	500	100
10	100	500	500	500	500	500	500	500	500	500	500	100
11	100	500	500	500	250	250	250	250	250	250	500	100
12	100	500	500	500	250	0	0	0	0	250	500	250
13	250	500	500	500	250	0	0	0	0	250	500	750
14	500	500	500	500	250	0	0	0	0	100	500	750
15	500	500	500	500	250	0	0	0	0	100	500	1000
16	500	750	500	500	250	0	0	0	0	100	500	1000
17	1250	750	1000	500	250	250	250	250	250	250	750	750
18	100	500	1000	1250	500	750	750	750	750	500	500	500
19	100	250	1000	1250	500	1000	1000	1000	1000	250	250	250
20	100	250	100	100	250	500	500	500	500	100	100	100
21	100	100	100	100	250	100	100	100	100	100	100	100
22	100	100	100	100	100	100	100	100	100	100	100	100
23	100	100	100	100	100	100	100	100	100	100	100	100
24	100	100	100	100	100	100	100	100	100	100	100	100

Table 25. 15G Solar Only Load Following Heat Map

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	100	0	0	0	0	0	0	0	0	0	0	250
2	100	0	0	0	0	0	0	0	0	0	0	250
3	100	0	0	0	0	0	0	0	0	0	0	250
4	100	0	0	0	0	0	0	0	0	0	0	250
5	100	0	0	0	0	0	0	0	0	0	0	250
6	100	250	250	250	0	0	0	0	0	0	250	250
7	100	1000	250	250	100	100	100	100	100	0	500	250
8	100	500	500	500	500	750	500	500	500	250	500	250
9	100	500	750	750	500	750	750	750	750	750	750	250
10	100	500	750	750	500	1000	1000	1000	1000	750	750	250
11	100	500	750	750	500	500	500	500	500	750	750	250
12	100	750	1000	750	500	500	500	500	500	500	750	250
13	250	750	1000	750	500	250	250	250	250	250	750	750
14	750	750	1000	1000	500	250	250	250	250	250	750	750
15	1000	750	1000	1000	500	250	250	250	250	250	1000	1000
16	1250	1000	1000	1000	500	250	250	250	250	500	1000	1000
17	2250	1500	1000	1000	500	250	250	250	250	500	1000	1000
18	250	750	1750	1750	500	500	500	500	500	750	500	250
19	100	100	2000	2000	1000	750	750	750	750	500	100	250
20	100	100	0	0	250	750	750	750	500	0	0	250
21	100	100	0	0	0	250	250	250	100	0	0	250
22	100	100	0	0	0	100	100	100	100	0	0	250
23	100	100	0	0	0	0	0	0	0	0	0	250
24	100	100	0	0	0	0	0	0	0	0	0	250

Table 26. 20G Solar Only Load Following Heat Map

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
2	250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3	250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	250.00	1250.00	1250.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	100.00
7	1000.00	1500.00	750.00	500.00	250.00	250.00	250.00	250.00	250.00	100.00	750.00	1000.00
8	250.00	250.00	750.00	750.00	1000.00	1000.00	1000.00	1000.00	250.00	250.00	250.00	250.00
9	250.00	750.00	1250.00	1000.00	1000.00	1000.00	1000.00	1250.00	1250.00	1250.00	1250.00	250.00
10	250.00	750.00	1250.00	1000.00	1000.00	1250.00	1250.00	1250.00	1250.00	750.00	1250.00	250.00
11	250.00	1000.00	1250.00	1000.00	1000.00	750.00	750.00	750.00	750.00	750.00	1250.00	500.00
12	250.00	1250.00	1250.00	1000.00	1000.00	750.00	750.00	750.00	750.00	750.00	1250.00	750.00
13	750.00	1250.00	1250.00	1000.00	1000.00	250.00	250.00	250.00	250.00	750.00	1250.00	1250.00
14	1250.00	1250.00	1250.00	1000.00	500.00	250.00	250.00	250.00	250.00	750.00	1250.00	1500.00
15	1500.00	1750.00	1500.00	1250.00	500.00	500.00	500.00	500.00	500.00	750.00	1500.00	2000.00
16	1750.00	2000.00	1750.00	1250.00	500.00	500.00	500.00	500.00	500.00	750.00	1750.00	2250.00
17	2500.00	2000.00	2000.00	1250.00	500.00	500.00	500.00	500.00	500.00	750.00	2250.00	2250.00
18	250.00	1750.00	2500.00	2500.00	1000.00	500.00	500.00	500.00	500.00	1750.00	1500.00	500.00
19	250.00	500.00	2500.00	2500.00	1750.00	1000.00	1000.00	1000.00	1000.00	500.00	100.00	100.00
20	250.00	100.00	100.00	750.00	1500.00	1000.00	1000.00	1000.00	1000.00	100.00	100.00	100.00
21	250.00	100.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	100.00
22	250.00	100.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00	0.00	0.00	100.00
23	250.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
24	250.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Table 27. 25G Solar Only Load Following Heat Map

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	250	100	100	100	100	100	100	100	100	100	100	500
2	250	100	100	100	100	100	100	100	100	100	100	500
3	250	100	100	100	100	100	100	100	100	100	100	500
4	250	100	100	100	100	100	100	100	100	100	100	500
5	250	100	100	100	100	100	100	100	100	100	100	500
6	250	1000	1000	500	100	100	100	100	100	100	1000	500
7	1500	1000	750	750	500	500	500	500	500	750	1000	1500
8	250	750	750	750	1000	1250	1000	1000	500	750	1250	100
9	250	1000	1250	1500	1500	1500	1500	1500	1500	1500	1500	100
10	500	1250	1500	1250	1250	1250	1250	1250	1500	1250	1500	500
11	750	1750	1500	1250	1000	750	750	750	1000	1250	1750	750
12	750	2000	1250	1250	1000	250	250	250	750	1000	1750	1000
13	1000	2000	1250	1250	1000	250	250	250	250	500	1750	1750
14	1750	2250	1750	1750	750	500	500	500	500	500	1750	1750
15	2250	2250	2250	2250	750	500	500	500	500	500	2250	1750
16	2250	2250	2250	2250	750	750	750	750	750	500	2250	2250
17	2500	2250	2250	2250	750	750	750	750	750	1000	2250	2250
18	500	2250	2250	2250	1000	750	750	750	750	1750	1750	750
19	250	1250	2250	2500	2500	1250	1250	1250	1750	2000	100	500
20	250	100	100	100	1500	1750	1500	1250	1750	100	100	500
21	250	100	100	100	100	100	100	100	750	100	100	500
22	250	100	100	100	100	100	100	100	100	100	100	500
23	250	100	100	100	100	100	100	100	100	100	100	500
24	250	100	100	100	100	100	100	100	100	100	100	500

The following tables contain heat maps reflecting the load following requirements needed to successfully mitigate the flex violations associated with the BESS scenarios. Note that only the 7.5G Solar (1,125MW of BESS) and 10G Solar (1,500 MW of BESS) scenarios required mitigation.

Table 28. 7.5 GW Solar/1,125MW BESS Load Following Heat Map

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	100.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00
6	0.00	500.00	750.00	250.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00
7	1500.00	1750.00	500.00	500.00	250.00	250.00	250.00	250.00	250.00	250.00	500.00	1250.00
8	0.00	0.00	500.00	500.00	750.00	750.00	750.00	500.00	250.00	250.00	500.00	0.00
9	0.00	0.00	750.00	500.00	750.00	750.00	750.00	500.00	500.00	750.00	500.00	0.00
10	0.00	0.00	750.00	250.00	250.00	250.00	250.00	250.00	500.00	750.00	750.00	0.00
11	0.00	250.00	750.00	250.00	250.00	250.00	250.00	250.00	250.00	750.00	750.00	0.00
12	0.00	750.00	750.00	250.00	250.00	0.00	0.00	0.00	0.00	250.00	750.00	0.00
13	0.00	750.00	750.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	750.00	750.00
14	750.00	750.00	750.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	750.00	750.00
15	750.00	750.00	750.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	750.00	1000.00
16	750.00	750.00	750.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	1000.00	1000.00
17	1000.00	750.00	750.00	750.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	250.00
18	0.00	250.00	1000.00	1250.00	500.00	250.00	250.00	250.00	250.00	1000.00	250.00	250.00
19	0.00	0.00	750.00	1250.00	1000.00	250.00	250.00	250.00	250.00	0.00	100.00	0.00
20	0.00	0.00	0.00	0.00	0.00	250.00	250.00	250.00	250.00	0.00	100.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 29. 10 GW Solar/1,500MW BESS Load Following Heat Map

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00
6	0.00	500.00	500.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00
7	1500.00	750.00	100.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	1000.00
8	0.00	100.00	100.00	500.00	500.00	500.00	500.00	250.00	250.00	250.00	250.00	0.00
9	0.00	100.00	100.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	0.00
10	0.00	100.00	100.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	0.00
11	0.00	100.00	100.00	500.00	250.00	0.00	250.00	250.00	250.00	500.00	500.00	0.00
12	0.00	100.00	250.00	500.00	250.00	0.00	0.00	0.00	0.00	250.00	500.00	0.00
13	0.00	100.00	500.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	500.00
14	500.00	500.00	500.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	500.00
15	500.00	500.00	500.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	500.00
16	500.00	500.00	500.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	500.00
17	500.00	500.00	500.00	500.00	0.00	100.00	100.00	100.00	100.00	0.00	750.00	500.00
18	0.00	100.00	1000.00	750.00	500.00	250.00	250.00	250.00	250.00	1000.00	500.00	0.00
19	0.00	0.00	750.00	1000.00	1000.00	500.00	500.00	500.00	500.00	0.00	100.00	0.00
20	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00
21	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Addendum to Rate CPE Attachment A

For Energy Storage Capacity

ADDENDUM FOR ENERGY STORAGE CAPACITY

This Addendum for Energy Storage Capacity (this "Addendum") is made and entered into as of the ___ day of _____, 20__ ("Addendum Effective Date") by and between Alabama Power Company ("Alabama Power") and [_____] ("QF").

WITNESSETH:

WHEREAS, in accordance with Alabama Power's Rate CPE (Contract for Purchased Energy) ("Rate CPE"), the Parties have either previously or concurrently herewith entered into that certain Contract for the Purchase of Energy from a Qualifying Facility dated [_____] ("CPE Agreement") for the sale of electric energy to Alabama Power from an electric generation facility;

WHEREAS, [QF intends to construct, own, operate and maintain an energy storage facility in _____ County, Alabama] [OR] [QF presently owns and operates an energy storage facility in _____ County, Alabama];

WHEREAS, QF will certify, or has certified, and will operate such electric generation facility and energy storage facility as a Qualifying Facility pursuant to the provisions of the Public Utility Regulatory Policies Act of 1978 ("PURPA"); and

WHEREAS, in addition to the sale of energy under the CPE Agreement, QF desires to sell to Alabama Power the electric capacity and provide to Alabama Power associated energy from such energy storage facility pursuant to the terms and conditions set forth in this Addendum.

NOW, **THEREFORE**, in consideration of the premises and of the mutual covenants set forth herein and other good and valuable consideration, the receipt, sufficiency and adequacy of which are hereby acknowledged, Alabama Power and QF, each intending to be legally bound, hereby agree as follows:

ARTICLE 1

DEFINITIONS

All capitalized terms in this Addendum shall have the respective meanings assigned to such terms in the CPE Agreement. In addition, unless otherwise defined herein, the following capitalized terms shall have the respective meanings set forth below.

"**Actual Round Trip Efficiency**" or "**Actual RTE**" means, at a given time, the rate of efficiency comparing an amount of Charging Energy injected into the BESS and the amount of resulting Discharging Energy that can be discharged by the BESS, as determined under the most recent test for Actual RTE conducted pursuant to **Attachment 3** (which shall be stated as a percentage of Discharging Energy to Charging Energy); provided that, for purposes of determining the Actual RTE with respect to Grid Charging Energy and Grid Discharging Energy (including for purposes of Section 6.3 and whether the Actual RTE meets the Guaranteed RTE), the amount of Grid Charging Energy and the amount of Grid Discharging Energy shall be measured at the high voltage side of the Interconnection Point.

"Addendum" means this Addendum for Energy Storage Capacity.

"**AGC**" means, generally, the equipment and capability of an energy storage facility to automatically adjust the output energy quantity within the applicable balancing authority with the purpose of interchange balancing and means, specifically, the BESS's capability of accepting a set-point electronically and the automatic adjustment and regulation of the BESS's energy output to meet the set point.

"**AGC Setpoint**" has the meaning set forth in **Attachment 6**.

"**Battery Energy Storage System**" or "**BESS**" means the [___] MW/[___] MWh battery energy storage system with [___]-Hour duration, to be located and constructed at the Site and further described herein, including in **Attachment 10**, together with all other equipment, devices and associated appurtenances owned, controlled, operated and managed by QF in connection with, or to facilitate, the storage, transmission, delivery or furnishing by QF to Alabama Power of the electric energy stored in the BESS.

"**BESS Capacity**" means the total capacity of the BESS (expressed in MW, Hour duration and MWh), as measured or determined at the Interconnection Point and as determined by the most recent BESS Capacity test conducted pursuant to **Attachment 3**.

"**BESS COD Criteria**" means the fulfillment, to Alabama Power's reasonable satisfaction, of all of the following criteria:

(i) QF shall have (a) demonstrated that the BESS:

(1) is installed and physically completed with a BESS Capacity of no less than the BESS Contract Capacity, as shown by performance tests in accordance with **Attachment 3**,

(2) is capable of receiving Energy Facility Charging Energy and Grid Charging Energy,

(3) is capable of delivering Discharging Energy to the Interconnection Point, and

(4) satisfies the performance guarantees set forth in **Attachment 2**, as shown by performance tests in accordance with **Attachment 3**; and

(b) provided Alabama Power a certificate from a responsible officer of QF certifying the foregoing (a) (1) through (4) and that the BESS has been designed, engineered, constructed and tested in accordance with Prudent Industry Practices and the terms of this Addendum, including **Attachment 3**;

(ii) QF shall have demonstrated that the BESS is capable of reliably storing electric energy and reliably delivering such electric energy to the Electric System through

the Interconnection Point, which demonstration shall include the delivery to Alabama Power of data from the metering equipment installed by Alabama Power that evidences the delivery of electrical energy from the BESS to the Interconnection Point;

(iii) the BESS has been interconnected to the Electric System pursuant to the Interconnection Agreement, the Interconnection Agreement is in full force and effect, and QF and the BESS are in compliance with the Interconnection Agreement;

(iv) QF shall have demonstrated that it has obtained all authorizations necessary to deliver energy from the BESS under this Addendum to the Interconnection Point and the Electric System;

(v) QF shall have provided Alabama Power a certificate from an independent, professional engineer registered in the State of Alabama, reasonably acceptable to Alabama Power, stating that the BESS has been designed, engineered, constructed and tested in accordance with Prudent Industry Practices and the terms of this Addendum, including **Attachment 3**;

(vi) QF shall have delivered to Alabama Power a certificate from a responsible officer of QF certifying that QF has obtained and is in compliance with all Consents;

(vii) the BESS's AGC system, as approved by Alabama Power under **Attachment 6**, is completely installed and fully operational and is connected to Alabama Power's AGC remote terminal unit (RTU), and QF has demonstrated to Alabama Power that the BESS is capable of responding to and following Alabama Power's AGC Setpoint signals and that the BESS's AGC system otherwise satisfies Section 5.8 and **Attachments 6, 7 and 8**;

(viii) QF shall have (a) demonstrated that: (1) the construction and installation of all equipment and facilities comprising the Energy Facility (as opposed to only a portion thereof), representing a total completed and installed electric generation capacity (as measured at the Interconnection Point) equal to (and not greater than) [_____] MWac, are complete; (2) the Energy Facility (as so completed) is capable of producing electric energy and delivering such electric energy to the BESS and to the Electric System through the Interconnection Point, (3) the Energy Facility (as so completed) is sized, designed and configured so that it will be the primary source of Charging Energy for the BESS, and (4) the Initial Delivery Criteria have been satisfied under the CPE Agreement; and (b) provided Alabama Power a certificate from a responsible officer of QF certifying that the Energy Facility has been designed, engineered, constructed and tested in accordance with Prudent Industry Practices and the terms of this Addendum and the CPE Agreement, including **Attachment 3**, as applicable; and

(ix) QF shall have delivered to Alabama Power a certificate from a responsible officer of QF certifying that QF is in compliance with all of the provisions of this Addendum and the CPE Agreement as of the Day that all of the foregoing criteria in (i) through (viii) are satisfied.

"**BESS COD Date**" means the date on which all of the BESS COD Criteria have been fully satisfied.

"**BESS Contract Capacity**" means the guaranteed [__] MW that the BESS must be capable of continuously discharging (as measured or determined at the Interconnection Point) over the BESS Discharge Duration Period as set forth in **Attachment 2**.

"**BESS Contract Year**" means any one of a succession of three hundred sixty-five (365) Day periods (or a three hundred sixty-six (366) Day period when there is a leap year), the first of which shall begin on the BESS Service Commencement Date and end on the first anniversary of the Day prior to the BESS Service Commencement Date. For example, if the BESS Service Commencement Date occurs on July 1, 2026, (i) the first (1st) BESS Contract Year shall commence on July 1, 2026 and end at the end of the Day on June 30, 2027, and (ii) the second (2nd) BESS Contract Year shall commence on July 1, 2027 and end at the end of the Day on June 30, 2028.

"**BESS Discharge Duration Period**" means the guaranteed number of Hours that the BESS must be capable of continuously discharging energy to the Interconnection Point at the BESS Contract Capacity, as set forth in **Attachment 2**.

"**BESS Service Commencement Date**" means the later of: (i) [_____] ***[Note: insert a date agreed to by Alabama Power and QF]***; or (ii) the Day immediately after the Day on which all of the BESS COD Criteria have been achieved.

"**BESS Service Term**" means the period commencing on the BESS Service Commencement Date through the end of the [_____] BESS Contract Year.

"**Cash Security**" means cash security, free and clear of any adverse lien or interest, provided pursuant to a pledge agreement and a control agreement, each in form and substance acceptable to Alabama Power.

"**Charging Energy**" means any energy used to charge the BESS, including Energy Facility Charging Energy and Grid Charging Energy.

"**CPE Agreement**" has the meaning set forth in the Recitals to this Addendum.

"**Critical Milestone**" means each of the "Critical Milestones" described in **Attachment 9**, including the requirements and conditions for achieving such Critical Milestones as set forth herein and in **Attachment 9**.

"**Cycle**" means the equivalent of bringing the BESS from a zero percent (0%) state of charge to Full Charge and discharging the BESS from Full Charge to a zero percent (0%) state of charge. By way of example, if the BESS is at half of Full Charge, and is then brought to Full Charge, and is subsequently discharged to half of Full Charge, one half (1/2) Cycle shall have occurred. For purposes of determining the portion of a Cycle that has occurred on a given Day, the amount of the applicable BESS discharge during such Day will be used.

"**Discharging Energy**" means energy discharged from the BESS in accordance with Alabama Power's direction pursuant to **Attachment 4** and the Operating Procedures, including Energy Facility Discharging Energy and Grid Discharging Energy.

"**Electrical Losses**" means all applicable electrical losses associated with the delivery of energy from one given point to another, including, for example, all electrical losses measured over a point-to-point distance, whether they occur on the Facility's wires or lines, distribution lines, transmission lines, or in any inline equipment such as transformers, and anything else that reduces energy, such as transformation and inversion.

"**Energy Facility**" means the solar or other generation facility referenced in the CPE Agreement and which is appropriately sized, designed and configured so that it will be the primary source of Charging Energy for the BESS.

"**Energy Facility Charging Energy**" means all energy produced by the Energy Facility (excluding Electrical Losses) delivered to the BESS.

"**Energy Facility Discharging Energy**" means Energy Facility Charging Energy delivered by QF from the BESS to the Interconnection Point.

"**Force Majeure Event**" means any occurrence, nonoccurrence or set of circumstances occurring after the Addendum Effective Date that (i) prevents QF from performing its obligations under this Addendum, (ii) is beyond the reasonable control of QF, (iii) is not caused by QF's negligence, lack of due diligence, or failure to follow Prudent Industry Practices, and (iv) could not have been avoided by the exercise of reasonable diligence and care; provided that the term Force Majeure Event shall not include: (a) a change in Legal Requirements; (b) the inability to meet a Legal Requirement or Consent; (c) the inability to obtain or a delay in obtaining any Consent; (d) a Site-specific strike, walkout, lockout or other labor dispute; (e) equipment failure; (f) changes in market conditions that affect the cost or availability of equipment, materials, supplies or services; (g) failures of contractors, suppliers or vendors; (h) climatic temperature and humidity conditions; (i) failure or inability to obtain or retain sufficient funds, credit or financing for any reason, including from a Governmental Authority; or (j) loss of or inability to obtain or retain tax credits or similar incentives for any portion of the Facility.

"**Full Charge**" means a state of charge of the BESS (in MWh) equal to the BESS Contract Capacity multiplied by the BESS Discharge Duration Period (i.e., the guaranteed BESS Operating Energy as defined in **Attachment 2**).

"**Grid Charging Energy**" means energy provided by Alabama Power through the Interconnection Point for the sole purpose of charging the BESS.

"**Grid Charging Energy Quantity**" has the meaning set forth in Section 6.3.2.

"**Grid Discharging Energy**" means Grid Charging Energy delivered by QF from the BESS to the Interconnection Point.

"**Guaranteed RTE**" has the meaning set forth in **Attachment 2**.

"**Letter of Credit**" means a letter of credit in a form acceptable to Alabama Power, which is in full force and effect and is not within ninety (90) Days of terminating or expiring, issued by a major U.S. commercial bank or a U.S. branch office of a major foreign bank who has and maintains assets of at least $25 billion and at all times having a senior unsecured rating of at least "A2" (or future equivalent) by Moody's and at least "A" (or future equivalent) by S&P.

"**Maximum Delivered Capacity Amount**" means the maximum amount of energy that QF is permitted to deliver to the Interconnection Point at any given time between the combination of energy generated by the Energy Facility and energy discharged from the BESS, which amount shall be equal to the lesser of (a) the limit set forth in the Interconnection Agreement, or (b) eighty (80) MW.

"**Monthly Performance Metric Reduction**" has the meaning set forth in **Attachment 1**.

"**Monthly Performance Storage Metric**" has the meaning set forth in **Attachment 1**.

"**Non-Peak Months**" means those Months designated by Alabama Power from time to time as "Non-Peak Months" for purposes of this Addendum, by notice provided to QF.

"**Operating Procedures**" has the meaning set forth in Section 5.1.

"**Performance Security**" has the meaning set forth in Section 11.1.

"**Performance Security Amount**" means $[_____].

"**Representatives**" means, when used with respect to a Party, collectively or individually (as the context might indicate), such Party, its Affiliates and permitted successors and assigns, and the directors, officers, representatives, agents, contractors, subcontractors, and employees of each of them.

"**Required BESS COD Date**" means the Required Milestone Date for the fulfillment of all of the BESS COD Criteria, as set forth in **Attachment 9**.

"**Required Milestone Date**" means, for each Critical Milestone, the date set forth in **Attachment 9** as the "Required Milestone Date" for such Critical Milestone.

"**Scheduled Outage**" has the meaning set forth in Section 5.5.

ARTICLE 2

INTEGRATION WITH CPE AGREEMENT

2.1 Integration. This Addendum is incorporated by reference into the CPE Agreement, and all of the terms and conditions of the CPE Agreement shall continue to apply and are incorporated by reference into this Addendum. Upon execution of this Addendum, the CPE Agreement and this Addendum (including all appendices, attachments and exhibits thereto) shall constitute a single integrated contract and agreement between the Parties. In the event of a conflict

between the terms of the CPE Agreement and this Addendum, the terms of this Addendum shall govern to the extent of the conflict.

2.2 Facility. For all purposes of the CPE Agreement and this Addendum, the term "Facility" shall mean the Energy Facility and the BESS as defined in this Addendum.

ARTICLE 3

CONSENTS; BESS DEVELOPMENT AND CONSTRUCTION

3.1 Consents. QF shall obtain and maintain, at its sole cost and expense, any and all Consents necessary for the siting, construction, ownership and operation of the BESS.

3.2 Development and Construction of the BESS; Facility Restrictions.

3.2.1 QF shall design, engineer, construct, test and commission the BESS in accordance with Prudent Industry Practices and applicable Legal Requirements.

3.2.2 No later than the end of each Month prior to the BESS Service Term, QF shall deliver a written report to Alabama Power describing the progress of development and construction of the BESS, including the estimated date that mechanical completion will occur and the estimated date that the BESS will initially synchronize to the Electric System.

3.3 Inspections. Upon reasonable prior advance notice to QF, Alabama Power or its Representatives shall be entitled to inspect the Site and the construction, maintenance, operation and testing of the BESS. QF shall cooperate in such inspections as may be reasonably required by Alabama Power, provided that: (i) such inspections shall not materially interfere with the construction, maintenance, testing or operations of the BESS, and (ii) Alabama Power complies with QF's reasonable policies and procedures applicable to the BESS and the Site, including health and safety policies and procedures. Any such review and inspection, should it occur, shall not be construed as any endorsement by Alabama Power of the design or construction of the BESS or as any warranty by Alabama Power of the safety, durability or reliability thereof.

3.4 Achievement of Critical Milestones.

3.4.1 QF shall use all diligent efforts to achieve each Critical Milestone by the applicable Required Milestone Date. QF shall provide Alabama Power with a description of progress in achieving each Critical Milestone with the Monthly reports provided pursuant to Section 3.2.2. After each Critical Milestone is achieved, QF shall thereafter cause the requirements and conditions for achieving such Critical Milestone to continue to be satisfied; provided that if such requirements and conditions are no longer satisfied, QF shall provide notice of the same to Alabama Power within ten (10) Business Days.

3.4.2 As a condition to achieving each Critical Milestone, QF shall provide Alabama Power with evidence reasonably demonstrating the achievement of the Critical

Milestone, which shall be the information and documentation identified in **Attachment 9** for such Critical Milestone (or other evidence reasonably satisfactory to Alabama Power).

3.4.3 If for any reason QF does not achieve a Critical Milestone on or before the applicable Required Milestone Date, or if the requirements and conditions for achieving the Critical Milestone are no longer satisfied at any time after the applicable Required Milestone Date, Alabama Power shall be entitled to terminate this Addendum at any time thereafter by providing notice to QF; provided, however, QF may cure a failure to achieve a Critical Milestone by the Required Milestone Date (other than the failure to achieve the BESS COD Date by the Required BESS COD Date, which shall be governed by Section 3.7), subject to the following:

(a) Within ten (10) Business Days after the applicable Required Milestone Date, QF shall (i) achieve the Critical Milestone or (ii) submit to Alabama Power (A) a written description of the reason for the failure to achieve the Critical Milestone, (B) the date QF expects it will achieve the missed Critical Milestone, which shall be no more than sixty (60) Days after the original Required Milestone Date ("Critical Milestone Extension Date"), and (C) a written recovery plan for achieving the missed Critical Milestone and achieving the remaining Critical Milestones by the applicable Required Milestone Dates (the "Recovery Plan"). The Recovery Plan shall also include an updated Facility development and construction schedule with dates for each remaining Critical Milestone, which updated schedule shall be subject to acceptance by Alabama Power, in its sole and absolute discretion; provided, however, in no event shall the Required Milestone Date for any other Critical Milestones be extended under such Recovery Plan.

(b) QF shall commence to undertake the measures contemplated by the Recovery Plan within five (5) Days after submitting such Recovery Plan to Alabama Power.

(c) QF shall be solely responsible for any costs or expenses incurred by QF as a result of developing and implementing the Recovery Plan.

(d) If QF fails in any material respect, as reasonably determined by Alabama Power, to: (i) meet the requirements of the Recovery Plan; (ii) demonstrate that the BESS COD Date will be achieved by the Required BESS COD Date pursuant to the Recovery Plan; or (iii) achieve completion of the missed Critical Milestone by the Critical Milestone Extension Date, such failure shall constitute a failure to meet a Critical Milestone by the applicable Required Milestone Date under this Section 3.4 and Alabama Power shall have the right to terminate this Addendum under this Section 3.4.

Nothing in this Section 3.4.3 shall be construed to: (x) relieve QF of its obligations under this Addendum or the CPE Agreement; (y) modify the Required Milestone Dates for achieving the remaining Critical Milestones (except for the missed Critical Milestone that QF is attempting to cure under this Section 3.4.3); or (z) relieve QF of its obligation to achieve the BESS COD Date by the Required BESS COD Date. QF's failure to achieve a Critical Milestone by the applicable Required Milestone Date shall not be excused, and Alabama Power's right to terminate this Addendum pursuant to this Section 3.4.3 shall not be limited, as a result of any Force Majeure Event.

3.5 BESS COD Date.

3.5.1 In the event that the BESS COD Date is not achieved by the Required BESS COD Date, QF shall pay Alabama Power an amount of liquidated damages equal to [_____] dollars ($[_____]) for each Day after the Required BESS COD Date until the BESS COD Date is achieved. Such liquidated damages shall be invoiced to QF by Alabama Power and shall be paid by QF to Alabama Power within three (3) Business Days after QF receives such invoice for the same. QF shall pay such liquidated damages to Alabama Power for each Day until the earlier of: (i) the BESS COD Date; (ii) the Day that QF terminates this Addendum pursuant to Section 3.5.2; or (iii) the Day that Alabama Power terminates this Addendum pursuant to Section 3.5.3.

3.5.2 After the Required BESS COD Date has occurred, if the BESS COD Date will not thereafter be achieved, QF shall be entitled to terminate this Addendum by providing notice to Alabama Power certifying that the BESS COD Date will not be achieved; provided that QF shall not be entitled to provide such notice prior to the Required BESS COD Date.

3.5.3 If the BESS COD Date is not achieved within one hundred eighty (180) Days after the Required BESS COD Date, then Alabama Power shall be entitled to terminate this Addendum at any time thereafter by providing notice to QF; provided, however, that Alabama Power shall not be entitled to provide such notice after the BESS COD Date is achieved.

3.6 Termination.

3.6.1 If Alabama Power provides notice to QF terminating this Agreement under Section 3.4 or Section 3.5.3, or if QF notifies Alabama Power under Section 3.5.2 that the BESS COD Date will not be achieved, then this Addendum shall immediately terminate and QF shall, within five (5) Business Days, pay to Alabama Power liquidated damages in an amount equal to the difference (if positive) of (a) an amount equal to the Performance Security Amount minus (b) any liquidated damages paid by QF to Alabama Power under Section 3.5.1 (provided that if the foregoing difference of (a) and (b) is negative, such liquidated damages shall be equal to zero (0)). Upon such termination, neither Party shall have any further obligation under this Addendum, except for obligations and liabilities that survive termination as provided in this Addendum or which accrued prior to or at

termination (including QF's obligation to pay liquidated damages under this Section 3.6.1 or under Section 3.5.1).

3.6.2 The Parties acknowledge and agree that in the event a Critical Milestone is not achieved by the applicable Required Milestone Date, if the requirements and conditions for achieving a Critical Milestone are no longer satisfied after the applicable Required Milestone Date, or if this Addendum terminates pursuant to Section 3.4, Section 3.5 or Section 3.6, all or a portion of the amount of the damages arising therefrom are not susceptible to an accurate determination. The Parties further acknowledge and agree that the liquidated damages set forth in Section 3.5 and Section 3.6 are not intended as a penalty and represent a fair and reasonable approximation of all or a portion of the damages Alabama Power may incur in each particular case.

3.7 Extension of Required BESS COD Date. QF shall be entitled to extend the Required BESS COD Date on a Day-for Day basis up to the period of any delay in achieving the BESS COD Date to the extent directly and proximately caused by a Force Majeure Event that cannot be overcome by QF by using commercially reasonable efforts, including by using commercially reasonable efforts to revise or rearrange QF's construction schedule; provided, for the avoidance of doubt, no other Critical Milestone shall be subject to extension due to a Force Majeure Event. In the event QF extends the Required BESS COD Date pursuant to this Section 3.7 by more than one hundred eighty (180) Days, Alabama Power shall be entitled to terminate this Addendum at any time thereafter upon notice to QF; provided, however, that Alabama Power shall not be entitled to provide such notice after the BESS COD Date is achieved. Upon any termination of this Addendum by Alabama Power under this Section 3.7, neither Party shall have any further obligation under this Addendum, except for obligations and liabilities that survive termination as provided in this Addendum or which accrued prior to termination.

ARTICLE 4

BESS SERVICE COMMENCEMENT DATE; TERM AND TERMINATION; APSC APPROVAL

4.1 BESS COD Date.

4.1.1 QF shall notify Alabama Power of the estimated BESS COD Date at least one hundred eighty (180) Days prior to such date or such shorter period as the Parties may agree.

4.1.2 In the event that QF believes that all of the BESS COD Criteria have been achieved, QF shall provide Alabama Power notice thereof; provided, however, QF shall provide Alabama Power with at least fifteen (15) Days prior notice of the actual BESS COD Date (or such shorter period as the Parties may agree).

4.2 Term.

4.2.1 This Addendum shall be effective as of the Addendum Effective Date. Subject to early termination of this Addendum, the "Term" of this Addendum shall begin on the Addendum Effective Date and shall continue until the end of the BESS Service Term.

4.2.2 By entering into this Addendum, notwithstanding anything to the contrary in the CPE Agreement and without further action of the Parties, the "Initial Period" as defined in the CPE Agreement and for all purposes of the CPE Agreement, is hereby modified to mean the period of time from the Initial Delivery Date (as defined in the CPE Agreement) through the later of: (i) date on which a revision to Rate CPE is made effective by the APSC; or (ii) the end of the BESS Service Term.

4.3 Survival. All provisions of this Addendum that expressly or by implication come into or continue in force and effect following the expiration or termination of this Addendum shall remain in effect and be enforceable following such expiration or termination, including all provisions of this Addendum which must survive in order to give force and effect to the rights and obligations of the Parties under this Addendum.

4.4 APSC Approval. This Addendum is subject to review and approval by the APSC in accordance with Rate CPE and any modifications that may be ordered by the APSC at the time of any such approval.

ARTICLE 5

OPERATION, PERFORMANCE AND MAINTENANCE OF THE BESS

5.1 Operating Procedures. QF and Alabama Power shall jointly develop written operating procedures with respect to the operation of the BESS ("Operating Procedures") at least sixty (60) Days prior to the anticipated BESS COD Date. Such Operating Procedures should address: (i) deliveries of energy during start-up and testing of the Facility; (ii) the method of day-to-day communications; (iii) clearance and switching practices; (iv) Alabama Power having real time access to BESS monitoring systems; (v) BESS operations log; (vi) reactive power output; (vii) technical limitations of BESS operation; (viii) coordination of maintenance scheduling; (ix) designation of Confidential Information, (x) logging and tracking of BESS Scheduled Outage Hours; (xi) procedures for charging and discharging the BESS, and/or (xii) such other matters as the Representatives of QF and Alabama Power agree are appropriate. In the event of inconsistency or conflict between the Operating Procedures and specific terms of this Addendum, the specific terms of this Addendum shall take precedence.

5.2 BESS Operating Requirements. The BESS shall be operated, maintained and dispatched in accordance with the requirements set forth in **Attachment 4** and the other provisions of this Addendum. QF will ensure that it supplies all needed data and control system access or interconnections to allow Alabama Power to direct, through the use of a 6-second AGC signal, that the energy output of the Energy Facility be directed, in whole or in part: (i) to the Interconnection Point, (ii) into the BESS; or (iii) out of the BESS to the Interconnection Point. The

same options will be available for Alabama Power's use of Grid Charging Energy and Grid Discharging Energy. Alabama Power shall be entitled to determine the effectiveness of the BESS use by tracking: (a) the daily minimum energy storage capability as compared to the BESS storage capability and BESS Contract Capacity; and (b) the daily minimum charge/discharge rate as compared to the BESS maximum rate of charge/discharge.

5.3 Access to the Facility. Upon reasonable notice, Alabama Power's Representatives shall have access to the Facility and the Site in order to: (i) inspect BESS equipment; (ii) inspect, maintain, and test meters and other Alabama Power equipment, (iii) monitor or measure energy generated by the Energy Facility, (iv) monitor or measure energy stored and discharged by the BESS, (v) inspect the Facility, and (vi) take such other action as may be reasonably necessary to exercise Alabama Power's rights under this Addendum. Alabama Power shall comply with the reasonable rules and procedures of QF when accessing the Facility or the Site under this Section 5.3.

5.4 Availability of Records. QF shall keep complete and accurate records and all other data with respect to its performance under this Addendum in accordance with the following guidelines:

5.4.1 All such records shall be maintained for a minimum of seven (7) years after the creation of such record or data and for any additional period of time required by any Legal Requirement or Governmental Authority. In the event QF intends to dispose of or destroy any such records after such seven (7) year period, QF shall provide Alabama Power with thirty (30) Days prior written notice.

5.4.2 Upon reasonable advance notice, Alabama Power shall have the right to examine the records and data of QF in order to facilitate any determination that Alabama Power is required or permitted to make under this Addendum.

5.5 Scheduled Outages. QF shall submit to Alabama Power a schedule of planned Energy Facility and BESS outages during which maintenance will be performed ("Scheduled Outages") as follows: (i) by no later than ninety (90) Days prior to the BESS Service Commencement Date, QF shall submit such schedule of Scheduled Outages for the period of the calendar year after the BESS Service Commencement Date occurs, and (ii) by no later than each September 1, QF shall submit such schedule of Scheduled Outages for the following calendar year for the remainder of the BESS Service Term; provided, however, that (a) QF shall only conduct Scheduled Outages of the Facility during Non-Peak Months; (b) the aggregate total period of such Scheduled Outages of the Energy Facility shall be limited to fourteen (14) Days for any given Contract Year; and (c) the aggregate total period of such Scheduled Outages of the BESS shall be limited to fourteen (14) Days for any given BESS Contract Year. Alabama Power shall have thirty (30) Days to review the proposed schedule of Scheduled Outages and may approve or reject such schedule in whole or in part, and may suggest alternative dates for Scheduled Outages. Scheduled Outages are subject to the prior approval of Alabama Power, which approval shall not be unreasonably conditioned, withheld or delayed. QF shall resubmit revised schedules for Scheduled Outages to Alabama Power within thirty (30) Days after Alabama Power's disapproval of a previous schedule, and Alabama Power and QF agree to use commercially reasonable efforts

to promptly develop schedules for Scheduled Outages that are mutually acceptable to the Parties. In addition, in the event that Alabama Power, in good faith, requests QF to postpone or revise the period of a Scheduled Outage due to a reasonably anticipated need for the energy from the Facility during such period, QF shall cooperate with Alabama Power to postpone or revise the period of the Scheduled Outage to the extent consistent with Prudent Industry Practices and provided that there would be no adverse effect caused to the Facility.

5.6 Station Service. The Parties may agree in the Operating Procedures for QF to utilize energy from the Facility for the purpose of Station Service, provided that the Parties shall also agree upon a method in the Operating Procedures to ensure that Alabama Power does not pay for any energy that may be utilized for Station Service. In no event shall energy generated by the Energy Facility used to provide Station Service constitute Charging Energy (including for calculation of Actual RTE), and QF shall not otherwise be entitled to any compensation for such energy. In addition, if energy stored in the BESS is used for Station Service, such energy may only be obtained from BESS capability that is in excess of or separate from the BESS Contract Capacity. Seller shall not utilize energy stored in the BESS for Station Service to any extent that such use reduces or would reduce the amount of stored energy, including Energy Facility Charging Energy and Grid Charging Energy, that Alabama Power has directed to be stored in the BESS and available for discharge in accordance with Alabama Power's AGC signals. In no event shall Grid Charging Energy supplied to the BESS be used for Station Service purposes.

5.7 Unplanned Outages.

5.7.1 All outages or derates of the BESS that are not Scheduled Outages approved by Alabama Power shall be referred to as "Unplanned Outages". In addition to Scheduled Outages, QF shall use commercially reasonable efforts to promptly notify Alabama Power of any Unplanned Outages, including any event or condition that will result in any portion of the BESS not being able to store or discharge energy, including forced outages of the Facility and Force Majeure Events affecting the Facility. Such notices shall contain information describing such event or condition, the beginning date and time of such event or condition, the expected end date and time of such event or condition, and any other information reasonably requested by Alabama Power. With respect to any such event or condition, QF shall provide Alabama Power with such notice by any reasonable means required by Alabama Power, including by computer application, telephone, or electronic mail.

5.7.2 For any Unplanned Outages of the BESS, such Unplanned Outages will impact the calculation of the Monthly Performance Storage Metric and/or the Monthly Performance Metric Reduction, which may reduce the Monthly Capacity Payment under **Attachment 1**. Means by which Alabama Power may determine that an Unplanned Outage has occurred may include: (i) notification of the Unplanned Outage by QF to Alabama Power, (ii) determination by Alabama Power that the BESS is not responding to AGC signals or is responding in a way that Alabama Power determines indicates a reduction in capability, and (iii) determination by Alabama Power that the BESS is telemetering, through AGC signals, a capability that is lower than the guaranteed values set forth in **Attachment 2**.

5.8 Automatic Generation Control. QF shall comply with the provisions of **Attachments 6, 7 and 8** with respect to AGC.

5.9 Metering.

5.9.1 QF shall, at its own cost, locate, construct, install, own, operate and maintain meters and such other facilities, equipment and devices as QF deems necessary or appropriate in order to determine the applicable amounts of electric energy to be measured under this Addendum prior to the Interconnection Point (including amounts of electric energy delivered to the BESS and discharged from the BESS), all in accordance with the Interconnection Agreement and Prudent Industry Practices. Alabama Power may, at its own cost, install additional meters or other such facilities, equipment or devices prior to the Interconnection Pont as Alabama Power deems necessary or appropriate to monitor the measurements of QF's meters installed pursuant to this Section 5.9.1.

5.9.2 The Parties shall agree upon the design of all meters installed pursuant to Section 5.9.1 and the CPE Agreement. The meters installed by Alabama Power pursuant to the CPE Agreement and QF pursuant to Section 5.9.1 shall be used for purposes of calculating Alabama Power's payment for deliveries of energy under this Addendum and the CPE Agreement and all testing and other requirements of this Addendum.

5.9.3 All meters and other such facilities, equipment and devices installed by Alabama Power shall be and remain the property of Alabama Power. All meters and other such facilities, equipment and devices installed by QF shall be and remain the property of QF.

5.9.4 QF shall inspect and test all meters installed by QF in order to measure the output of the Energy Facility and the BESS, and the energy delivered into the BESS, at such times as QF deems necessary or appropriate. Upon reasonable written request to QF, Alabama Power may request an inspection or testing of any such meters. Alabama Power shall be responsible for, and shall reimburse QF for, all reasonable costs and expenses incurred by or on behalf of QF in connection with such inspections or tests requested by Alabama Power unless such inspection or test reveals that such meters are inaccurate by more than one-half of one percent (0.5%) from the measurement made by the standard meter used in the test, in which event QF shall bear all costs of such testing. QF shall give reasonable written notice to Alabama Power of the time and place when any such meter is to be inspected or tested, and Alabama Power may have a representative present at such inspection.

ARTICLE 6

SALE AND DELIVERY OF ENERGY AND BESS CAPACITY

6.1 Sale and Purchase of Energy.

6.1.1 Commencing on the BESS Service Commencement Date and thereafter for the BESS Service Term, subject to the terms and conditions of this Addendum, QF shall sell and deliver to Alabama Power energy from the BESS at the Interconnection Point pursuant to and in accordance with Alabama Power's dispatch requests (including by AGC signals) under **Attachment 4**. Subject to Section 6.1.2 and Section 6.3.2, Alabama Power shall purchase and receive from QF, all energy delivered to the Interconnection Point from the BESS pursuant Alabama Power's dispatch requests.

6.1.2 Alabama Power's payment obligation for energy delivered from the BESS to the Interconnection Point shall be determined pursuant to Section 8.1 of the CPE Agreement and Appendix A of the CPE Agreement. Notwithstanding the foregoing, (i) Alabama Power shall not be required to pay QF any amounts for energy produced by the Energy Facility that is delivered into the BESS (including under the CPE Agreement) unless and until such energy is delivered from the BESS to the Interconnection Point pursuant to Alabama Power's dispatch requests, and (ii) Alabama Power shall not be required to pay QF any amounts for Grid Charging Energy delivered from the BESS to the Interconnection Point.

6.2 Sale and Purchase of BESS Capacity.

6.2.1 During the BESS Service Term, subject to the terms and conditions of this Addendum, QF shall sell and provide to Alabama Power, and Alabama Power shall purchase and receive from QF, the BESS Capacity, up to the BESS Contract Capacity.

6.2.2 Alabama Power shall pay for the BESS Capacity through the payment of the Monthly Capacity Payment determined pursuant to **Attachment 1**.

6.2.3 Within a reasonable period of time after the end of each Month during the BESS Service Term, Alabama Power or its Affiliate shall include the amount of the Monthly Capacity Payment for such Month within the Monthly Statement provided under Section 8.1.1 of the CPE Agreement. The Monthly Capacity Payment shall be paid subject to the provisions of Article 8 of the CPE Agreement.

6.3 Grid Charging and Discharging Energy.

6.3.1 During the BESS Service Term, Alabama Power shall be entitled to charge the BESS utilizing Grid Charging Energy in accordance with this Addendum. QF shall deliver Grid Discharging Energy from the BESS as requested by Alabama Power under this Addendum. QF shall cooperate with Alabama Power as required in order to track the amount of Grid Charging Energy provided by Alabama Power and the amount of such Grid Charging Energy that is delivered by QF to Alabama Power in the form of Grid Discharging Energy.

6.3.2 With respect to a given quantity of Grid Charging Energy delivered by Alabama Power to charge the BESS ("Grid Charging Energy Quantity"), QF guarantees that it shall (as requested pursuant to the dispatch of Alabama Power under this Addendum) deliver Discharging Energy to Alabama Power in an amount no less than the product of:

(i) such Grid Charging Energy Quantity; multiplied by (ii) the greater of the Guaranteed RTE or the Actual RTE (such amount being referred to as the "Guaranteed Discharging Energy"). In the event that QF utilizes Energy Facility Discharging Energy to meet the foregoing guarantee, Alabama Power shall not be required to pay QF any amounts for such Energy Facility Discharging Energy, including under the CPE Agreement. In the event that QF does not deliver an amount of Discharging Energy as requested and dispatched by Alabama Power equal to the Guaranteed Discharging Energy, then QF shall pay to Alabama Power an amount equal to the Grid Discharging Energy Payment, which shall be equal to the product of: (a) the amount of Guaranteed Discharging Energy that QF fails to deliver; multiplied by (b) the Energy Cost, which shall be equal to the greater of the following:

(1) Alabama Power's actual cost of the applicable Grid Charging Energy Quantity that was delivered to the BESS; or

(2) the System Incremental Cost (as defined in Section E of **Attachment 1**) for the Hour of the applicable non-delivery of Guaranteed Discharging Energy.

6.4 Reactive Power Support. During the BESS Service Term, the BESS and the Energy Facility must be capable of providing, and upon Alabama Power's request QF will cause the BESS and the Energy Facility to provide, reactive power support to Alabama Power (i.e., to produce and absorb reactive power) to meet Alabama Power's voltage schedule requirements specified in Southern Companies' Bulk Power Operations Procedure BPO-01 at all real power levels (pushing and pulling). QF is required to design the BESS and the Energy Facility to meet the reactive power criteria as specified in the Interconnection Agreement. QF shall bear all costs for any net real electrical power draws associated with providing any and all reactive power support described in this Section 6.4.

6.5 Exclusivity. From the Effective Date and throughout the Term, Alabama Power shall have exclusive rights to the entire capacity and energy of the BESS, and QF shall not sell, supply or otherwise provide electrical capacity or energy from the BESS to any other Person(s).

6.6 Electrical Products. The payments under this Addendum constitute full and complete compensation for all energy and capacity provided to Alabama Power from the BESS, as well as for Electrical Products that are inherently embedded in or connected with such energy and capacity. Alabama Power shall not be required to accept or pay for any Electrical Products, if any, produced by or related to the BESS, and QF shall not seek separate or additional compensation from Alabama Power for any such Electrical Products under this Addendum or any other agreement, tariff or rate schedule or filing with any Governmental Authority.

6.7 Point of Delivery; Title and Risk of Loss; Indemnity.

6.7.1 QF shall deliver energy from the BESS to Alabama Power at the Interconnection Point.

6.7.2 Title to energy from the BESS shall pass from QF to Alabama Power at the

Interconnection Point; provided, however, that title to Grid Charging Energy shall remain with Alabama Power at all times. QF covenants that it shall have good and marketable title to all energy delivered from the BESS to the Interconnection Point and that it has the right to, and will, sell and deliver such energy to Alabama Power free and clear of all liens and encumbrances.

6.7.3 Risk of loss of all energy from the Energy Facility and the BESS shall remain with QF prior to the Interconnection Point. QF shall have risk of loss of all Grid Charging Energy and all Discharging Energy on QF's side of the Interconnection Point.

6.7.4 Without limiting QF's obligations under Section 11.1 of the CPE Agreement, QF shall release, defend, indemnify and hold harmless Alabama Power and its Representatives, from and against any and all loss, damage, liability, claims (including claims and actions involving injury to or death of any person or damage to property, including the BESS and other property of QF), damages, penalties, demands, fines, forfeitures, suits, actions and causes of action and all costs and expenses incident thereto, including court costs, costs of defense, costs of investigation, settlements, judgments, and attorneys' fees, directly or indirectly resulting from the development, construction, use and operation of the BESS, including those which are alleged to be caused by, arise out of, or are in connection with: (i) QF's or its Representatives' acts and omissions in connection with the performance, or failure thereof, of obligations or representations and warranties under this Addendum; and (ii) the charging of the BESS with Charging Energy, the storage of Charging Energy, or the discharge of Charging Energy.

ARTICLE 7

EVENTS OF DEFAULT; REMEDIES

7.1 Default by QF. Any one or more of the following events shall constitute an Event of Default by QF:

(i) QF fails to pay any amount payable by QF to Alabama Power under this Addendum when due, which failure has continued for thirty (30) Days after notice thereof has been given by Alabama Power to QF;

(ii) QF fails to comply with the terms and conditions of Article 11;

(iii) QF becomes insolvent, becomes subject to bankruptcy or receivership proceedings, or dissolves as a legal business entity;

(iv) any representation or warranty of QF to Alabama Power under this Addendum is false or misleading in any material respect when made and QF fails to conform to said representation or warranty within sixty (60) Days after a demand by Alabama Power to do so;

(v) the Interconnection Agreement is terminated due to an event of default of QF;

(vi) the Monthly Storage Performance Metric (as calculated pursuant to Attachment 1): is less than: (i) seventy-five percent (75%) for each of three (3) consecutive Months, or (ii) seventy-five percent (75%) for any six (6) Months of any consecutive twelve (12) Month period;

(vii) the Actual Round Trip Efficiency is less than [_____] percent ([___]%), unless QF cures the condition that resulted in such deficiency and demonstrates pursuant to a subsequent test within thirty (30) Days that the Actual Round Trip Efficiency is greater than or equal to [_____] percent ([___]%);

(viii) the BESS is not capable of continuously generating at least [____] MW over [____] consecutive Hours;

(ix) the BESS Capacity (as determined pursuant to performance tests conducted under **Attachment 3**) is less than fifty percent (50%) of the BESS Contract Capacity for a period of [_____] Days;

(x) the occurrence of an event or circumstance described in **Attachment 8** as an Event of Default;

(xi) the occurrence of an Event of Default of QF under Section 10.1 of the CPE Agreement; or

(xii) QF fails to perform or comply with any other material term or condition of this Addendum and fails to conform to said term and condition within sixty (60) Days after a demand by Alabama Power to do so.

7.2 Default by Alabama Power. Any one or more of the following events shall constitute an Event of Default by Alabama Power:

(i) Alabama Power fails to pay any amount payable by Alabama Power to QF under this Addendum when due, which failure has continued for thirty (30) Days after notice thereof has been given by QF to Alabama Power;

(iii) Alabama Power becomes insolvent, becomes subject to bankruptcy or receivership proceedings, or dissolves as a legal business entity;

(iv) any representation or warranty of Alabama Power to QF under this Addendum is false or misleading in any material respect when made and Alabama Power fails to conform to said representation or warranty within sixty (60) Days after a demand by QF to do so;

(v) the occurrence of an Event of Default of Alabama Power under Section 10.2 of the CPE Agreement; or

(ii) Alabama Power fails to perform or comply with any other material term or condition of this Addendum and fails to conform to said term or condition within sixty (60) Days after a demand by QF to do so.

7.3 Remedies for Events of Default.

7.3.1 If an Event of Default has occurred and is continuing with respect to a Party ("Defaulting Party"), the other Party ("Non-Defaulting Party") shall have the right by notice to the Defaulting Party to take one or more of the following actions in its sole discretion: (i) terminate this Addendum; and/or (ii) pursue available remedies at law or equity, including specific performance of the Defaulting Party's obligations under this Addendum.

7.3.2 If the Non-Defaulting Party provides notice terminating this Addendum under subpart (i) of Section 7.3.1, the Non-Defaulting Party shall designate a Business Day in such notice that is no more than sixty (60) Days after the date on which such notice is given, on which designated Business Day this Addendum shall terminate (such designated date being referred to as the "Early Termination Date"). As soon as practicable thereafter, the Non-Defaulting Party shall provide notice to the Defaulting Party of the Settlement Amount, including a written statement explaining in reasonable detail the calculation of such amount. As used in this Addendum, the "Settlement Amount" shall be equal to the sum of: (i) the Cover Damages of the Non-Defaulting Party as calculated pursuant to Section 7.3.3; plus (ii) all amounts owed by the Defaulting Party to the Non-Defaulting Party pursuant to this Addendum as of the Early Termination Date.

7.3.3 As used in this Addendum, "Cover Damages" means an amount that is equal to the Non-Defaulting Party's Gains, Losses and Costs resulting from the termination of this Addendum netted into a single amount. If the Non-Defaulting Party's aggregate Losses and Costs exceed its aggregate Gains, then the net positive amount shall equal the Cover Damages. If the Non-Defaulting Party's aggregate Gains exceed its aggregate Losses and Costs resulting from the termination of this Addendum, the Non-Defaulting Party may retain such excess and the Cover Damages shall be deemed to be equal to zero (0). Such Gains, Losses and Costs shall be determined in a commercially reasonable manner by comparing the costs under this Addendum of the capacity, energy and Electrical Products that would be available under this Addendum for the remainder of the BESS Service Term had this Addendum not been terminated to the market price of capacity and energy (subject to equivalent terms and conditions regarding dispatch, reliability and delivery) and products that are equivalent to the Electrical Products for the remaining BESS Service Term had this Addendum not been terminated. To ascertain such market price, the Non-Defaulting Party may consider, among other evidence, offers and proposals for the sale of capacity, energy and products that are equivalent to the Electrical Products (including offers and proposals received by the Non-Defaulting Party and/or its Affiliates in response to any request for proposals), all adjusted for the length of the remaining BESS Service Term (had this Addendum not been terminated) and differences in locational basis (including costs of transmission investments and transmission service), reliability, dispatch flexibility and any other considerations affecting value. The Non-Defaulting Party shall not be required to enter into any replacement transactions in order to determine the Cover

Damages. As used in this Section 7.3.3: (i) "Costs" means brokerage fees, commissions and other similar transaction costs and expenses reasonably incurred by the Non-Defaulting Party either in terminating any agreement which it has entered into to fulfill its obligations hereunder or entering into new agreements which replace this Addendum, and reasonable attorneys' fees, if any, incurred in connection with enforcing its rights under this Addendum; (ii) "Gains" means an amount equal to the economic benefit determined on a mark to market basis (exclusive of Costs), if any, resulting from the termination of this Addendum; and (iii) "Losses" means an amount equal to the economic loss determined on a mark to market basis (exclusive of Costs), if any, resulting from the termination of this Addendum; provided that the term Losses shall not include the lost value of any investment tax credit, production tax credit, or any other similar tax credit or benefit associated with the Facility.

7.3.4 The Defaulting Party shall pay to the Non-Defaulting Party the Settlement Amount as calculated by the Non-Defaulting Party within three (3) Business Days after receiving notice of the Settlement Amount from the Non-Defaulting Party. Notwithstanding any other provision of this Addendum, the Defaulting Party shall not be entitled to withhold any portion of the Settlement Amount calculated by the Non-Defaulting Party that is disputed by Defaulting Party. If the Defaulting Party disputes the Non-Defaulting Party's calculation of the Settlement Amount, the Defaulting Party shall nevertheless pay the full amount of such Settlement Amount as required by this Section 7.3.4 and shall provide to the Non-Defaulting Party a detailed written explanation of the basis for such dispute. Upon the resolution of such dispute, any amounts owed by a Party as a result shall be paid within three (3) Business Days after the relevant settlement of the dispute or order from a Governmental Authority resolving the dispute.

7.3.5 This Addendum shall terminate on the Early Termination Date and upon such termination, neither Party shall have any further obligation under this Addendum, except for obligations and liabilities that survive termination as provided in this Addendum or which accrue prior to or at termination (including the Defaulting Party's obligation to pay the Settlement Amount).

7.3.6 In no event shall a Non-Defaulting Party be required to pay a Defaulting Party a Settlement Amount.

7.3.7 The Parties acknowledge and agree that in the event that this Addendum terminates as a result of an Event of Default, the amount of such damages is not susceptible to an accurate determination. The Parties further acknowledge and agree that the amounts that a Defaulting Party is required to pay under this Section 7.3 are not intended as a penalty and represent a fair and reasonable approximation of the damages a Non-Defaulting Party may incur due to the termination of this Addendum.

ARTICLE 8

REPRESENTATIONS AND WARRANTIES

8.1 Execution. Each Party represents and warrants to the other Party as of the Addendum Effective Date that: (i) it has all the necessary corporate or [_____] authority (as applicable) and all legal power and authority and has been duly authorized by all necessary corporate or [_____] action (as applicable) to enable it to lawfully execute, deliver and perform under this Addendum and the CPE Agreement; and (ii) it is a valid legal entity duly organized and validly existing in good standing under the laws of the state of its formation and is, to the extent required, qualified to do business in the State of Alabama.

8.2 Binding Obligations. Each Party represents and warrants to the other Party that, as of the Addendum Effective Date, this Addendum is the valid and binding obligation of such Party, enforceable against such Party in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, fraudulent conveyance, moratorium or other similar laws affecting enforcement generally, and by equitable principles regardless of whether such principles are considered in a proceeding at law or in equity.

8.3 Execution and Consummation. Each Party represents and warrants to the other Party that, as of the Addendum Effective Date, the execution and delivery of this Addendum, the consummation of the transactions contemplated under this Addendum, and the fulfillment of and compliance with the provisions of this Addendum do not and will not conflict with any of the terms, conditions or provisions of its organizational documents or any Legal Requirement applicable to it.

ARTICLE 9

REGULATORY AND COMPLIANCE

9.1 CPE Agreement Provisions. The provisions of Article 7 of the CPE Agreement are hereby incorporated into this Addendum, *mutatis mutandis*.

9.2 Cyber Security. During the Term, the Facility shall comply with the applicable requirements for Bulk Electric System generation facilities in North America set forth in the NERC reliability standards created pursuant to FERC Order 706 (Cyber Security Standards). With respect to any actual or suspected cyber security incident that compromises, disrupts, or constitutes an attempt to compromise or disrupt: (i) QF's cyber security or physical security at the Facility; (ii) the performance of QF's obligations regarding the operation of the Facility; or (c) products, software, or systems provided or to be provided under this Addendum (a "Cyber Security Incident"), QF shall report such Cyber Security Incident to Alabama Power within twenty-four (24) Hours after discovery.

ARTICLE 10

INSURANCE

10.1 Insurance Required of QF.

10.1.1 During the Term, QF shall acquire and maintain at its sole cost and expense, the types and amounts of insurance coverage as are consistent with Prudent Industry Practices but in no event less than the types and amounts described in **Attachment 5** and this Article 10. All such insurance shall be written by a company or companies with a Best's rating of no less than "A minus, VII."

10.1.2 Alabama Power and its Representatives shall be designated as additional insureds as their interests may appear on the commercial general liability required under **Attachment 5** and any excess liability policies.

10.1.3 The required policies in **Attachment 5** shall be primary and shall not contribute to any insurance that may otherwise be maintained by, or on behalf of, Alabama Power and its Representatives.

10.1.4 To the extent allowed by applicable law, QF waives and must require its insurers to waive rights of subrogation against Alabama Power and its Representatives under the insurance policies and coverages required in **Attachment 5**.

10.1.5 Prior to the commencement of work on the Energy Facility or the BESS at the Site, QF shall provide Alabama Power with certificates of insurance evidencing the required coverage set forth above and in **Attachment 5**. QF shall provide a minimum of thirty (30) Days advance notice to Alabama Power of cancellation or material change in coverage. QF shall obtain the prior written consent of Alabama Power for, after providing Alabama Power advance copies of, any policy endorsements that could modify or restrict Alabama Power's rights as an additional insured or under the contractual liability provisions of the subject policies, provided that such approval shall not be unreasonably withheld, delayed or conditioned, for any policy endorsements that could modify or restrict Alabama Power's rights as an additional insured or under the contractual liability provisions of the subject policies. Failure by QF to cause the procurement of the insurance coverage or the delivery of certificates of insurance required by this Article 10 or **Attachment 5** shall not relieve QF of the insurance requirements set forth herein or therein or in any way relieve or limit QF's obligations and liabilities under any other provision of the CPE Agreement or this Addendum.

10.1.6 The provisions requiring QF to acquire and maintain insurance hereunder shall not be construed as a waiver, restriction, or limitation of any liability imposed on QF under the CPE Agreement or this Addendum, whether or not the same is covered by insurance. It is the intent of the Parties, however, that to the extent there is insurance coverage available to cover the legal and contractually assumed liability of QF, any

payments due as a result of such liability shall be made first from the proceeds of such policies.

ARTICLE 11

PERFORMANCE SECURITY

11.1 Performance Security Required. By no later than the Addendum Effective Date, QF shall provide to Alabama Power and maintain thereafter, performance security in favor of Alabama Power in the form of Cash Security or a Letter of Credit ("Performance Security"), in either case in an available undrawn amount equal to the Performance Security Amount.

11.2 Use of Performance Security. Alabama Power shall be entitled to draw and/or be paid upon the Performance Security: (i) following and during the continuance of a breach of this Addendum by QF, whether or not this Addendum has expired or otherwise been terminated; (ii) if such Performance Security is within ninety (90) Days of expiry, expiration or termination and such Performance Security (or substitute or replacement Performance Security) is still required under the terms of this Addendum and substitute or replacement Performance Security that satisfies the requirements of this Addendum as to form, issuer and amount has not been provided (in which case the amount of such draw shall be held and treated by Alabama Power as Cash Security); and/or (iii) otherwise in compliance with the terms of such Performance Security. In the event that Alabama Power draws upon and/or realizes payment from the Performance Security provided by QF under this Addendum, then within five (5) Business Days after such draw or payment, QF shall provide to Alabama Power an amendment to such Performance Security or additional Performance Security as necessary such that the total available undrawn amount of Performance Security provided to and held by Alabama Power hereunder continues to be equal to or greater than the Performance Security Amount.

11.3 Return of Performance Security. Alabama Power shall return the Performance Security to QF upon the later to occur of: (i) the expiration or termination of this Addendum; or (ii) the indefeasible and irrevocable payment and performance of all of QF's obligations under this Addendum.

ARTICLE 12

CHANGES IN CONTROL; RIGHT OF FIRST OFFER; ASSIGNMENT

12.1 Changes in Control. QF agrees that, without the prior written consent of Alabama Power, there will be no: (i) assignment or transfer of any ownership interest of QF in the Facility or any portion thereof; or (ii) Change in Control with respect to QF. For purposes hereof, "Change in Control" means any transaction or series of transactions which, if consummated, would result in fifty percent (50%) or more of the ownership interests in QF being owned or controlled (directly or indirectly) by an ultimate parent entity(ies) that is different than QF's ultimate parent entity prior to such transaction. For purposes hereof, QF's ultimate parent entity is the Person who directly or indirectly controls fifty percent (50%) or more of the ownership interests in QF and who itself is not owned or controlled by any other entity ("Ultimate Parent"). The foregoing

requirements shall apply with respect to each separate proposed assignment or Change in Control during the Term.

12.2 Right of First Offer. Alabama Power shall have an exclusive right of first offer ("ROFO") with respect to any Transfer of any QF Interests or any Facility Assets, as set forth in this Section 12.2.

12.2.1 For purposes of this Section 12.2, the following terms shall have the respective meanings set forth below:

(i) "Facility Assets" means the Energy Facility, the BESS and all other assets and property (whether real or otherwise) that are necessary or desirable to own, control and operate the Energy Facility or the BESS, including contracts and permits that are related to the Facility and the ownership and operation thereof (including the CPE Agreement and this Addendum).

(ii) "QF Interests" means the ownership interests in QF.

(iii) "Transfer" means to, directly or indirectly, transfer, sell, convey or exchange Facility Assets or QF Interests; provided, however, for purposes of this Section 12.2, a "Transfer" shall not include a transfer, sale or conveyance of Facility Assets or QF Interests to an Affiliate of QF but only if following such transaction more than fifty percent (50%) of the QF Interests and Facility Assets are owned and controlled (directly or indirectly) by the same Ultimate Parent of QF prior to the transfer, sale or conveyance.

12.2.2 If at any time QF or any of its Affiliates intends to Transfer any of the Facility Assets or any of the QF Interests, then QF or the applicable Affiliate(s) shall be obligated to first offer to sell to Alabama Power such Facility Assets or QF Interests and shall provide to Alabama Power notice stating: (a) a description of the QF Interests or Facility Assets proposed to be Transferred; (b) a summary of the desired material terms and conditions of the proposed Transfer, including price; and (c) all information relating to the QF Interests and the Facility Assets which QF has in its possession and of which it is aware ("Offer Notice").

12.2.3 No later than ten (10) Days after Alabama Power receives the Offer Notice under Section 12.2.2 (and thereafter as may be requested by Alabama Power), QF shall provide Alabama Power access to all information relating to the QF Interests and the Facility Assets and access to the Facility Assets which is reasonably required for Alabama Power to evaluate whether to exercise its ROFO rights under this Section 12.2.

12.2.4 By no later than the date that is ninety (90) Days after both the Offer Notice and access to all information under Section 12.2.3 have been received by Alabama Power, Alabama Power shall have the right (but not the obligation) to notify QF ("Alabama Power ROFO Notice") that it desires to purchase the applicable Facility Assets or QF Interests

pursuant to the terms set forth in the Offer Notice. If Alabama Power provides such Alabama Power ROFO Notice within such time period, then Alabama Power and QF shall use reasonable efforts to execute and deliver, within ninety (90) Days after the date the Alabama Power ROFO Notice is received by QF (such ninety (90) Day period being referred to as the "ROFO Period"), an agreement whereby Alabama Power would purchase the applicable Facility Assets or QF Interests on terms substantially similar to the terms set forth in the Offer Notice (which shall, in addition, be subject to requisite regulatory approvals applicable to Alabama Power or QF with respect to the Transfer of the Facility Assets or QF Interests, including APSC approval, and other customary conditions to closing). In the event that (i) Alabama Power does not provide a Alabama Power ROFO Notice within ninety (90) Days after the both the Offer Notice and access to all information under Section 12.2.3 have been received by Alabama Power, or (ii) such a purchase agreement is not executed and delivered by the end of the ROFO Period despite the reasonable efforts of the Parties, then QF or the applicable Affiliate of QF shall be free for a period of three hundred sixty five (365) Days after the end of the ROFO Period to consummate the Transfer of the applicable Facility Assets or QF Interests that were the subject of the applicable Offer Notice to any third party so long as the Transfer is at a price that is not lower than the price set forth in the Offer Notice, and on other terms that are no more favorable to such third party than those set forth in such Offer Notice; provided that any requirement(s) for regulatory approvals applicable to Alabama Power (but not to such third party) shall not be considered in determining whether such terms are materially more favorable to such third party than those set forth in such Offer Notice. In the event that the consummation of such Transfer does not occur within such three hundred sixty-five (365) Day period, then neither the QF Interests nor the Facility Assets shall be Transferred until Alabama Power is provided with a ROFO and other rights pursuant to this Section 12.2 and QF again complies with the requirements of this Section 12.2.

12.2.5 In the event that QF (or any of its applicable Affiliates) consummates a Transfer of the QF Interests or the Facility Assets as permitted by Section 12.2.4, this Section 12.2 and the rights and obligations of the Parties under this Section 12.2 shall continue in full force and effect for the Term and shall apply to any and all subsequent Transfers of any Facility Assets or QF Interests that may be intended by the applicable QF or its Affiliates under during the Term.

12.2.6 Upon notice to QF, Alabama Power shall be entitled to assign its rights and obligations under this Section 12.2 to any of its Affiliates without the prior consent of QF.

12.2.7 Upon request by Alabama Power, QF shall promptly execute such documentation and instruments as reasonably requested by Alabama Power that set forth Alabama Power's rights under this Section 12.2, which Alabama Power may record to give public notice of such rights.

12.2.8 Nothing in this Section 12.2 shall be construed as limiting the obligations of QF under Section 12.1 with respect to assignments and Changes in Control, including the requirement to obtain Alabama Power's consent as set forth therein.

12.3 Costs of Alabama Power. QF agrees that: (i) in the event QF proposes to assign or transfer any indirect or direct interest in the Energy Facility or the BESS, or the CPE Agreement or this Addendum (including any collateral assignment for financing purposes); (ii) there is a Change in Control proposed by QF; or (iii) QF requests Alabama Power to execute a written consent or other document in connection with either of the foregoing, then in any case of (i), (ii) or (iii), QF shall be responsible for all costs and expenses incurred by Alabama Power (including legal fees and expenses) that arise from or relate to the same, including the evaluation, negotiation, preparation, execution and/or delivery of such documents.

ARTICLE 13

MISCELLANEOUS

The provisions of Article 13 of the CPE Agreement are hereby incorporated into this Addendum, *mutatis mutandis*.

[The next page is the signature page.]

IN WITNESS WHEREOF, QF and Alabama Power have caused this Addendum to be executed by their duly authorized representatives as of the Addendum Effective Date.

ALABAMA POWER COMPANY

By: _____

Name: _____

Title: _____

[QF]

By: _____

Name: _____

Title: _____

ATTACHMENT 1

MONTHLY CAPACITY PAYMENT

A. <u>Capacity Payment</u>. For each Month of each BESS Contract Year, Alabama Power shall pay to QF the Monthly Capacity Payment ("MCP") calculated as follows:

MCP = MMCP – MCPR

Where:

MMCP = Maximum Monthly Capacity Payment, determined as follows:

MMCP = (BCC * CP * MVF)

Where:

BCC = the BESS Contract Capacity (in MW) for such Month, as set forth in **Attachment 2**.

CP = the Capacity Price as set forth in Section B of this **Attachment 1**.

MVF = the applicable Monthly Value Factor set forth in Section C of this **Attachment 1**.

In the event that the BESS Service Commencement Date occurs on a Day other than the first Day of a Month, or if the last Day of the BESS Service Term occurs on a Day other than the last Day of a Month, the Maximum Monthly Capacity Payment will be determined on a pro rata basis.

MCPR= The Monthly Capacity Payment Reduction, which shall be equal to the greater of (i) the Monthly Performance Metric Reduction determined for such Month (as calculated by Alabama Power pursuant to Section D of this **Attachment 1**); or (ii) the total Replacement Costs determined for such Month (as calculated by Alabama Power pursuant to Section E of this **Attachment 1**).

If the Monthly Capacity Payment Reduction is greater than or equal to the Maximum Monthly Capacity Payment for the applicable Month, then the Monthly Capacity Payment will be reduced to zero dollars ($0.00), and Alabama Power will not be required to pay QF a Monthly Capacity

Payment for such Month. Any Monthly Capacity Payment Reduction, if applicable, shall be reflected on each applicable Monthly invoice for the Monthly Capacity Payment.

Alabama Power will not owe QF a Monthly Capacity Payment for, and will not otherwise owe QF any payment or other compensation for the capacity of the BESS for: (i) any Month prior to the Month of the BESS Service Commencement Date, and (ii) Alabama Power will not owe QF any payment or other compensation for a BESS Contract Year for the capacity of the BESS except the Monthly Capacity Payments.

B. **Capacity Price.** The Capacity Price is $[_____] / MW-year.[1]

C. **Monthly Value Factors.** The Monthly Value Factors for each Month are as follows:

Month	Monthly Value Factor
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	

Notwithstanding the Monthly Value Factors above, Alabama Power shall be entitled, in its sole and absolute discretion, to modify the Monthly Value Factors for any or all Months of a BESS Contract Year by providing notice to QF, provided that: (i) Alabama Power provides QF such notice at least one hundred eighty (180) Days prior to the commencement of the applicable BESS Contract Year; (ii) each Monthly Value Factor must be at least equal to 0.01; and (iii) the sum of all Monthly Value Factors for each BESS Contract Year must equal 1.0.

D. **Monthly Performance Metric Reduction.**

[1] NOTE: The Capacity Price for each year will vary by BESS facility based on a number of factors, including term, size of the BESS and the Energy Facility and duration of the BESS.

QF guarantees that the Monthly Storage Performance Metric ("MSPM") shall be at least ninety-six percent (96%) for each Month. In the event that the MSPM (as determined below) for any Month is less than ninety-six (96%), then the Monthly Performance Metric Reduction ("MPMR") will be as calculated as follows:

MPMR = MMCP * MSF

Where:

MMCP = the Maximum Monthly Capacity Payment as determined in Section A of this **Attachment 1**.

MSF = the Monthly Storage Factor as calculated in Table 1 below, based on the MSPM for the Month.

Table 1
Monthly Storage Factor

Monthly Storage Performance Metric ("MSPM"), as determined below.	Monthly Storage Factor ("MSF")
Greater than or equal to 96%	0
Less than 96% but at least 75%	(96% – MSPM) * 2.0
Less than 75%	1.0

For a MSPM of at least seventy-five percent (75%) but less than ninety-six percent (96%), the MSF is equal to two (2.0) multiplied by each percent or fraction thereof of MSPM shortfall below ninety-six percent (96%). For example, in the event the MSPM is ninety-five and two tenths percent (95.2%), there will be an eight tenths percent (0.8%) shortfall below ninety-six percent (96%), and the MSF will be equal to one and six tenths percent (1.6%).

If the MSPM is less than seventy-five percent (75%), then the MSF for the month will be equal to one (1.0).

For purposes of this Addendum, the Monthly Storage Performance Metric ("MSPM") for each Month shall be calculated as follows:

Upon the conclusion of each Month, Alabama Power will determine the MSPM for such Month by calculating two components: (1) the Energy Storage Performance Metric; and (2) the Charge/Discharge Rate Performance Metric. The Energy Storage Performance Metric and the Charge/Discharge Rate Performance Metric for the Month will be averaged, with the result being the MSPM for the Month.

A. Energy Storage Performance Metric

The Energy Storage Performance Metric will be calculated for each Month as follows:

$$\text{Energy Storage Performance Metric} = [\sum_{i=1}^{n} \text{5 Minute Minimum Storage Capability}_i] \,/\, [\sum_{i=1}^{n} \text{BOE}_i]$$

Where:

n = total number of 5-Minute Periods in the Month, excluding 5-Minute Periods of BESS Scheduled Outages approved by Alabama Power.

i = each 5-Minute Period in the Month, excluding 5-Minute Periods of BESS Scheduled Outages approved by Alabama Power.

5 Minute Minimum Storage Capability (in MWh) = the minimum storage capability of the BESS over each 5-Minute Period (which shall be capped at the amount of the BOE) as reported by QF or as determined by Alabama Power from QF's non-compliance with AGC signals or Alabama Power's other requests for energy from the BESS.

BOE or BESS Operating Energy (in MWh) = the BESS Operating Energy as defined in **Attachment 2**.

The Energy Storage Performance Metric for a Month shall not exceed 1.0. QF will provide Alabama Power real-time access to QF's control system, as needed, in order to facilitate Alabama Power's determination of the values comprising the above calculations.

B. Charge/Discharge Rate Performance Metric

The Charge/Discharge Rate Performance Metric will be calculated for each Month as follows: (Note: all negative values will be converted to absolute values for calculation of this metric):

$$\textbf{Charge/Discharge Rate Performance Metric} = [\sum_{i=1}^{n} \text{5 Minute Min Charge/Discharge Rate Limit}_i] \,/\, [\sum_{i=1}^{n} \text{BESS Max Rate of Charge or Discharge}_i]$$

Where:

n = total number of 5-Minute Periods in the Month, excluding 5-Minute Periods of BESS Scheduled Outages approved by Alabama Power.

i = each 5-Minute Period, excluding 5-Minute Periods of BESS Scheduled Outages approved by Alabama Power.

5 Minute Min Charge/Discharge Rate Limit (MW) = the lower of: (1) the smallest rate at which the BESS can be charged (in MW) during the applicable 5-Minute Period, or (2) the smallest rate at which the BESS can be discharged (in MW) during the applicable 5-Minute Period. For both numbers, any rate reductions or limits will either be reported by QF or determined by Alabama Power from QF's non-compliance with AGC signals or Alabama Power's other requests for energy from the BESS. The 5 Minute Min Charge/Discharge Rate Limit shall be capped at the amount of the denominator in the above calculation for each applicable 5-Minute Period.

BESS Max Rate of Charge or Discharge (MW) = the guaranteed maximum instantaneous rate at which the BESS can be charged or discharged, as applicable. For this calculation, Alabama Power will use either the Guaranteed Maximum Instantaneous Charge Rate (which shall be used if the charge rate is used in the numerator above for the applicable 5-Minute Period) or the Guaranteed Maximum Instantaneous Discharge Rate (which shall be used if the discharge rate is used in the numerator above for the applicable 5-Minute Period).

Where:

"Guaranteed Maximum Instantaneous Charge Rate" = the guaranteed maximum instantaneous rate of charge of the BESS (in MW), as set forth in **Attachment 2**.

"Guaranteed Maximum Instantaneous Discharge Rate" = the guaranteed maximum instantaneous rate of discharge of the BESS (in MW), as set forth in of **Attachment 2**.

The Charge/Discharge Rate Performance Metric for a Month shall not exceed 1.0. QF will provide Alabama Power real-time access to QF's control system, as needed, in order to facilitate Alabama Power's determination of the values comprising the above calculations.

E. <u>Replacement Costs</u>

For purposes of this Addendum, "Replacement Costs" shall mean, for any given Hour when QF does not deliver energy from the BESS to the Interconnection Point as requested by Alabama Power (including through AGC signals), the sum of: (a) the product of: (1) the amount of such energy requested by Alabama Power (including through AGC signals) that is not delivered, multiplied by (2) the difference of the Replacement Price for such Hour minus the price that Alabama Power would have paid for such energy under this Addendum if it had been delivered; plus (b) all energy imbalance charges, transmission costs, penalties, charges and other costs and expenses that Alabama Power incurs as a result of the non-delivery of such energy or as a result of purchasing energy to replace such energy, including pursuant to applicable transmission or other tariffs; <u>provided</u>, <u>however</u>, that if the foregoing sum of (a) and (b) is a negative amount for a given Hour, then the Replacement Costs for such Hour shall be deemed to be equal to zero dollars

($0.00).

In addition to the foregoing definition of Replacement Costs, the following terms shall have the respective meanings below:

"Replacement Price" means, for any given Hour during which QF does not deliver energy from the BESS as requested by Alabama Power (including through AGC signals): (i) to the extent that Alabama Power determines in its sole discretion to not make a specific purchase(s) of energy to replace all or a portion of the energy not delivered for such Hour, the System Incremental Cost for such Hour multiplied by 110%, or (ii) to the extent that Alabama Power determines in its sole discretion to make a specific purchase of energy to replace all or a portion of the energy not delivered for such Hour, the price for which Alabama Power purchases energy to replace such energy not delivered (or such applicable portion), plus documented costs and fees reasonably incurred by Alabama Power in purchasing such replacement energy (e.g., broker fees), plus transmission charges and transmission losses, if any, reasonably incurred by Alabama Power to deliver such replacement energy to the applicable Interconnection Point, and administrative costs, if any, reasonably incurred by Alabama Power for such replacement energy (in each case stated in terms of $/MWh of replacement energy).

"System Incremental Cost" means, for a given Hour, the incremental cost, measured in dollars per MWh, for Alabama Power and its Affiliates to supply the next MWh of energy, after serving the requirements of all of Alabama Power's and its Affiliates' native load customers, all other power sales of Alabama Power and its Affiliates (including both firm and non-firm sales), and all contractual obligations of Alabama Power and its Affiliates during such Hour. System Incremental Cost shall include marginal replacement fuel cost, variable operation and maintenance costs, fuel handling costs, emission allowance replacement costs, compensation for transmission losses, delivered cost of energy purchases from others, start-up and unit commitment costs, and any other energy-related costs, all as determined by Alabama Power after the applicable Hour.

QF acknowledges and agrees that neither Alabama Power nor its Affiliates shall be required to utilize or change their utilization of their individually or collectively owned or controlled assets (including electric generation facilities), purchased power or market positions in order to minimize the Replacement Price or Replacement Costs for any given Hour. Further, QF acknowledges and agrees that Alabama Power shall be entitled (but shall not be required) to purchase energy to replace any energy not delivered from any Person(s) in its reasonable discretion and that any such purchase may be utilized in the determination of the Replacement Price and Replacement Costs hereunder.

For billing purposes after the end of each Month, Alabama Power shall provide QF a written statement which sets forth the amount of Replacement Costs as soon as practicable, including the Replacement Price for each applicable Hour. Provided, however, that such calculations may be based on an estimate of the System Incremental Cost for the applicable Hours during such Month. Subsequently, Alabama Power shall calculate the actual System Incremental Cost for each such Hour and re-determine the Replacement Costs and the Monthly Capacity Payment Reduction for the applicable Month based on such actual values. Alabama Power will then true-up the difference

between the Monthly Capacity Payment Reduction previously determined for such Month to the re-determined Monthly Capacity Payment Reduction based on the actual System Incremental Cost in subsequent monthly billings. In the event that a previously determined Monthly Capacity Payment Reduction (based on estimated values of System Incremental Cost) is higher than such re-determined Monthly Capacity Payment Reduction (based on actual values of System Incremental Cost), such true-up shall be implemented through a credit provided to QF. In the event that a previously determined Monthly Capacity Payment Reduction (based on estimated values of System Incremental Cost) is lower than such re-determined Monthly Capacity Payment Reduction (based on actual values of System Incremental Cost), such true-up shall be implemented through an additional amount billed to QF, which shall be paid by QF to Alabama Power within ten (10) Days after receipt of an invoice for such amount.

F. Annual Charging Energy Performance Reduction ("ACEPR")

Alabama Power will calculate the Annual Charging Energy Factor ("ACEF") for each BESS Contract Year. For each BESS Contract Year, the ACEF shall be equal to the quotient of: (i) the sum of the total Delivered Energy during such BESS Contract Year for which Alabama Power is required to pay QF under the CPE Agreement plus the total amount of energy deliveries curtailed or interrupted by Alabama Power under the CPE Agreement (if any) during such BESS Contract Year for which Alabama Power is required to pay QF under the CPE Agreement; divided by (ii) the Annual Energy Forecast for such BESS Contract Year (as set forth in Attachment 11).

If the ACEF for a BESS Contract Year is equal to or greater than 90%, then the ACEPR for such BESS Contract Year shall be equal to zero dollars ($0.00). If the ACEF for a BESS Contract Year is less than 90%, then an ACEPR will be calculated for such BESS Contract Year as follows:

If 65% =< ACEF < 90%, then:

ACEPR = (90% - ACEF (%)) * 2 * Annual Sum of Monthly Capacity Payments

If ACEF < 65%, then:

ACEPR = 50% * Annual Sum of Monthly Capacity Payments

For this purpose, the "Annual Sum of Monthly Capacity Payments" shall be equal to the total of the Monthly Capacity Payments attributable to the applicable BESS Contract Year (as calculated in Section A of this **Attachment 1**), the first and last of which shall be subject to appropriate proration in the event that a BESS Contract Year does not begin on the first day of a Month or end on the last day of a Month.

Alabama Power will calculate the ACEPR within sixty (60) Days after the end of each BESS Contract Year, and QF shall pay such ACEPR to Alabama Power within twenty (20) Days after receipt of an invoice for the same.

ATTACHMENT 2

PERFORMANCE GUARANTEES

A. Round Trip Efficiency Guarantees.

QF guarantees that the Actual RTE will be no less than [____] percent ([___]%) ("Guaranteed RTE").

B. Other BESS Guarantees.

Other guaranteed performance values of the BESS are as follows:

BESS Contract Capacity: [___] MW

BESS Discharge Duration Period: [_____] Hours

BESS Operating Energy (BOE) (in MWh): the product of the BESS Contract Capacity and the BESS Discharge Duration Period (i.e., [___] MWh).

Guaranteed Maximum Instantaneous Charge Rate: [___] MW

Guaranteed Maximum Instantaneous Discharge Rate: [___] MW

Other Guaranteed Specifications: [_____]

The above performance guarantees are fixed throughout the BESS Service Term and will not lower or degrade. QF will manage, supplement, or augment the BESS to ensure that the performance guarantees are satisfied at no additional cost to Alabama Power. Failure to meet the performance guarantees in any Month will result in Monthly Performance Metric Reductions and/or Monthly Capacity Payment Reductions pursuant to **Attachment 1**.

ATTACHMENT 3

PERFORMANCE TESTS

Procedures for testing the performance of the BESS, including for purposes of demonstrating that the guarantees in **Attachment 2** are satisfied, are attached to this **Attachment 3**.

[Performance test procedures to be provided and attached by Alabama Power.]

QF and Alabama Power may, by mutual agreement, revise the performance test procedures from time-to-time during the Term.

By no later than [_____], QF shall conduct performance tests of the BESS in accordance with the testing procedures in this **Attachment 3** to demonstrate that the guarantees in **Attachment 2** are satisfied. Alabama Power shall be entitled to require QF to conduct additional performance tests during the BESS Service Term to confirm that such guarantees continue to be satisfied or to demonstrate actual performance.

In addition, Alabama Power may require QF to conduct performance tests to demonstrate certain performance characteristics of the BESS, including:

- Electrical Losses to the Interconnection Point and between other points necessary to properly account for Electrical Losses between portions of the Facility prior to the Interconnection Point.
- BESS Capacity
- Actual RTE
- Maximum Charging Rate
- Maximum Discharging Rate
- Minimum Discharging Time
- Minimum Charging Time

Procedures for testing the foregoing performance characteristics are attached to this **Attachment 3**.

[Test procedures to be provided and attached by Alabama Power.]

ATTACHMENT 4

BESS OPERATING REQUIREMENTS

The Parties agree that at all times, QF shall be responsible for:

1. Discharging and charging of the BESS in accordance with the real-time directions provided by Alabama Power, including through AGC signals;
2. All other aspects of operation and maintenance of the BESS in accordance with Prudent Industry Practices and applicable Legal Requirements;
3. Complying with requirements contained in the Interconnection Agreement, including operation and performance validation requirements; and
4. Adhering to all operational data, interconnection, and telemetry requirements applicable to the BESS.

A. Dispatch.

(i) During the BESS Service Term, the Parties agree to the following parameters for the dispatch of the BESS:

(a) QF shall not charge or discharge the BESS except as specifically directed by Alabama Power.
(b) Alabama Power shall control the disposition of all energy going into and out of the BESS using its 6-second AGC signals.
(c) Alabama Power shall be able to request that the BESS be dispatched up to three-hundred and sixty-five (365) Cycles per BESS Contract Year, and not to exceed 2 Cycles per day. Alabama Power will track Cycles and ensure it remains in compliance with these requirements.
(d) The BESS must be capable of receiving and responding to AGC signals from Alabama Power and allow Alabama Power to monitor, measure, and record the state of charge, Charging Energy, and Discharging Energy at all times in accordance with the AGC requirements defined herein.
(e) In the event of an AGC disruption, Alabama Power will communicate BESS operations desired to QF and QF will comply with Alabama Power's requests manually to the best of QF's ability.
(f) In no event shall energy delivered from the BESS and the Energy Facility at the Interconnection Point at any given time exceed the Maximum Delivered Capacity Amount.
(g) QF shall ensure that the BESS satisfies all operational and performance requirements under the Interconnection Agreement, including when the BESS is discharging (during cycling or otherwise).

(ii) QF shall provide to Alabama Power, at least [_____] ([___]) Days prior to the BESS Service Commencement Date, technical limits describing the BESS capability, the routine charge/discharge times required for operation, and response times and ramp rates of the BESS. The technical limits should also include the effects, if any, of ambient temperature on the operation and performance of the BESS.

B. Charging of the BESS.

(i) Alabama Power shall have full control of the disposition of all energy directed into or out of the BESS at no additional cost and the right to charge the BESS using Grid Charging Energy or Energy Facility Charging Energy.

(ii) QF shall deliver energy produced by the Energy Facility to the Interconnection Point and the BESS strictly in accordance with Alabama Power's instructions. For energy that Alabama Power instructs QF to deliver from the Energy Facility to the Interconnection Point, QF shall deliver such energy from the Energy Facility to the Interconnection Point (i.e., without first delivering such energy to the BESS or using such energy to charge the BESS). For energy from the Energy Facility that Alabama Power instructs QF to use to charge the BESS, QF shall deliver such energy from the Energy Facility directly into the BESS.

(iii) QF shall deliver energy stored in the BESS strictly in accordance with Alabama Power's instructions. For energy that Alabama Power instructs QF to deliver from the BESS, QF shall delivery such energy from the BESS directly to the Interconnection Point.

(iv) QF shall not charge the BESS with any energy produced by the Energy Facility unless and except to the extent expressly directed by Alabama Power. QF shall not deliver energy from the BESS unless and except to the extent expressly directed by Alabama Power. QF shall not be paid for any energy delivered to the BESS that is not delivered to the Interconnection Point.

(v) Alabama Power shall request the BESS use Grid Charging Energy when, in Alabama Power's reasonable determination, the Energy Facility is not generating sufficient energy to charge the BESS, and the use of Grid Charging Energy will enable the BESS to produce Discharging Energy sufficient to alleviate or prevent unanticipated equipment outages and emergencies directly affecting the public health, safety, or welfare, which would result from electric power outages. In no case will Alabama Power request the BESS to use Grid Charging Energy that would result in the amount of Grid Charging Energy exceeding twenty-five percent (25%) of the total Charging Energy of the Energy Facility during the twelve (12)-month period beginning with the date the Energy Facility first produces Discharging Energy or in any calendar year subsequent to the year in which the Energy Facility first produces Discharging Energy.

C. Communications. Real time communications between the QF and Alabama Power are required with respect to the BESS. QF must have the capability to receive real time control signals from Alabama Power as well as to communicate with the BESS status in real time.

ATTACHMENT 5

QF INSURANCE REQUIREMENTS

QF must acquire and maintain, at its sole cost and expense, the following:

1. Commercial General Liability insurance, or equivalent coverage, on an "occurrence" form, with bodily injury and property damage combined liability limits of not less than $[_____] million dollars per occurrence and which shall include specific coverage for broad form contractual liability including QF's indemnification obligations under this Addendum and the CPE Agreement and a separation of insured provision. QF may use the insurer, Associated Electric & Gas Insurance Services, Limited ("AEGIS") as its insurer and its "claims made" form to satisfy this requirement; provided, QF shall maintain coverage for a minimum period of five (5) years after the termination of this Addendum.

2. All risk property insurance providing coverage for the full replacement value of the Facility, subject to industry standard sub-limits. Any property insurance deductibles shall be the sole responsibility of QF.

3. Workers' compensation insurance in statutory amounts covering the legal liability of QF under the applicable laws of the state (or under Federal acts or statuses when appropriate). Such insurance must include employer's liability in an amount of $[_____] million dollars.

ATTACHMENT 6

AGC REQUIREMENTS

1.1 For purposes hereof, the following definitions have the meanings set forth below:

"AGC Setpoint Response Performance Metric" has the meaning set forth in **Attachment 8.**

"AGC Setpoint Response Performance Requirement" has the meaning set forth in **Attachment 8.**

"AGC Setpoint" means a value (MW) that will range from 0 to the maximum Facility output.

"AGC Status Performance Metric" has the meaning set forth in **Attachment 8**.

"AGC Status Performance Requirement" has the meaning set forth in **Attachment 8**.

1.2 AGC. QF will, at its expense, install, operate and maintain AGC equipment and systems at the BESS as necessary to enable the BESS to respond to and follow Alabama Power's AGC Setpoint signals. QF is responsible for all costs incurred with respect to the BESS that are necessary to make the BESS respond to Alabama Power's AGC Setpoint signals. The BESS must be capable of remaining on AGC at all times. The BESS's AGC systems will include all necessary connections to the AGC equipment and systems of Alabama Power (to Alabama Power's reasonable satisfaction) to enable Alabama Power to send AGC Setpoint signals to the BESS and measure, record and control energy input and output from the BESS at all times. The BESS's AGC system must be configured to interface with Alabama Power's AGC remote terminal unit (RTU) to send and receive data for AGC that satisfies the minimum data requirements in **Attachment 7**. The BESS's AGC system must conform to Prudent Industry Practices.

1.2.1 QF is responsible for operating the BESS and producing, storing and delivering energy in compliance with Alabama Power's AGC Setpoint signals. QF must telemeter the

maximum Rate of Change at all times during the operation of the BESS, and Alabama Power's AGC Setpoint signal will include the maximum Rate of Change as a limiting factor for changes in energy output. For purposes hereof, the "Rate of Change" is the real-time maximum ramp rate when increasing or decreasing output (accounting for any equipment or operational issues which may affect such ramp rate).

1.2.2 Attachment 8 prescribes the AGC Status Performance Requirement and the AGC Setpoint Response Performance Requirement. QF is responsible for achieving the AGC Status Performance Requirement and the AGC Setpoint Response Performance Requirement for each Month. If QF fails to achieve the AGC Status Performance Requirement or the AGC Setpoint Response Performance Requirement for (i) any three (3) consecutive Month period or (ii) six (6) Months in any twelve (12) Month period, then QF's failure shall constitute an Event of Default as set forth in Attachment 8.

ATTACHMENT 7

AGC MINIMUM DATA REQUIREMENTS

The BESS's AGC system must be configured to interface with Alabama Power's AGC remote terminal unit (RTU) to send and receive the following data for AGC:

From Alabama Power to BESS

- Setpoint (MW)

From BESS to Alabama Power

- Generation (MW)
  - Positive to indicate discharging
  - Negative to indicate charging
- On AGC signal (True/False)
- SOC (MWh)
- Max SOC (MWh)
- Min SOC (MWh)
- Current Discharge Limit [Operating High Limit (MW)]
- Max Discharge Limit [High Limit (MW)]
- Current Charge Limit [Operating Low-Limit (MW)]
- Max Charge Limit [Low Limit (MW)]
- Discharge AGC Ramp Increase (+MW/min)
- Charge AGC Ramp Decrease (-MW/min)
- Average Site Cell Temperature, if available (°C)
- Aux Power (MW)
- % of stacks in service
- Storage Setpoint Feedback (MW)
- Equivalent cycles/day counter
- Equivalent cycles/year counter

General Flow of AGC

The BESS will transmit in 6-second intervals all of its points to Alabama Power and Alabama Power will update its points every scan. The BESS will calculate the BESS's maximum MW and BESS's minimum MW and will transmit those to Alabama Power every scan. The BESS will also transmit its AGC rate of change for both increase and decrease and will echo back to Alabama Power what it has received for the AGC Setpoint.

Explanation of Points

From Alabama Power to BESS

- **Setpoint (MW)**: A value up to the current charge / discharge limit MW for the BESS in a positive (discharge) or a negative (charge) direction. The Facility is expected to regulate to meet this value at the POI.

From BESS to Alabama Power

- **Generation (MW)**:
  - Aggregated Gross Storage MW and Aggregated Storage MW at the Interconnection Point;
  - Positive to indicate discharging; and
  - Negative to indicate charging.

- **On AGC signal**: An integer value that will range from 0 to 1. A '0' value will indicate the BESS is on local control and a '1' will indicate the BESS is available for remote control.

- **SOC (MWh)**: A value representing the actual state of charge (SOC) and range from the minimum declared MWh to the maximum declared MWh for the device. This calculated value represents the AC energy that can be delivered at the Interconnection Point (not the DC energy stored in the BESS).

- **Max SOC (MWh)**: A value indicating the maximum state of charge capability for the BESS. This is a calculated value and not the nameplate to give the operating range of the system.

- **Min SOC (MWh)**: A value indicating the minimum state of charge capability for the BESS. This is a calculated value and not the nameplate to give the operating range of the system.

- **Current Discharge Limit [Operating High Limit (MW)]**: A value indicating the real-time maximum rate of power the BESS can be discharged (MW). Discharged power is provided as a positive (+) value. Dependent on state of system (any derated equipment or abnormal conditions).

- **Max Discharge Limit [High Limit (MW)]**: A value indicating the real-time maximum rate of power the BESS can be discharged (MW) provided as a positive (+) value. Independent of state of system.

- **Current Charge Limit [Operating Low Limit (MW)]**: A value indicating the real-time minimum rate of power the BESS can be charged (MW) provided as a negative (-) value. Dependent on state of system.

- **Max Charge Limit [Low Limit (MW)]**: A value indicating the real-time maximum rate of power the BESS can be charged (MW) provided as a negative (-) value. Independent of state of system.

- **Discharge AGC Ramp Increase (+MW/min)**: A value indicating the maximum rate of power the BESS can be discharged (MW) provided as a positive (+) value. The value should reflect the real-time capability to prevent AGC Setpoints from exceeding the tolerance.

- **Charge AGC Ramp Decrease (-MW/min)**: A value indicating the maximum rate of power the BESS can be charged (MW) provided as a negative (-) value. The value should reflect the real-time capability to prevent AGC Setpoints from exceeding the tolerance.

- **Average Site Cell Temperature, if available (°C)**: A value indicating average site cell temperature provided as degrees Fahrenheit.

- **Aux Power (MW)**: A value indicating station service load (MW) if applicable.

- **% of stacks in service**: A value indicating the number of battery stacks/racks in service and expressed as a percentage.

- **BESS Setpoint Feedback (MW)**: An echo of the value received from EMS for the EMS setpoint.

- **Equivalent cycles/day counter**: This value will be an equivalent cycles per day calculated based on (i) the amount of energy discharged at the Interconnection Point from the BESS, divided by (ii) the maximum declared MWh of the BESS. This will be reset to 0 at midnight and will be passed to the EMS to ensure the desired number of equivalent cycles per day is not exceeded.

- **Equivalent cycles/year counter**: This value will be an equivalent cycles per year calculated based on (i) the amount of energy discharged at the Interconnection Point from the BESS, divided by (ii) the maximum declared MWh of the BESS. This will be cumulative and will be passed to the EMS to ensure the desired number of equivalent cycles per year is not exceeded.

ATTACHMENT 8

AGC PERFORMANCE METRICS AND PERFORMANCE REQUIREMENTS

Upon the conclusion of each Month, Alabama Power will perform the necessary calculations for each of the AGC Status Performance Metric and the AGC Setpoint Response Performance Metric to determine whether QF has achieved the AGC Status Performance Requirement and the AGC Setpoint Response Performance Requirement, respectively.

AGC Status Performance Requirement:

The AGC Status Performance Requirement for each Month is that the AGC Status Performance Metric for the Month will equal ninety percent (90%), or greater. The AGC Status Performance Metric for each Month will be calculated as follows:

$$\text{AGC Status Performance Metric} = [\sum_{i=1}^{n}\left(\frac{\text{AGC Status}_i}{n}\right)]*100$$

Where:

n = total 6-seconds AGC periods in the Month

i = 6-seconds data point

AGC Status = one (1) if the BESS is in AGC mode and capable of responding to Alabama Power's AGC Setpoint signal, or zero (0) if the BESS is not in AGC mode and is not capable of responding to Alabama Power's AGC Setpoint signal.

If the AGC Status Performance Metric equals less than ninety percent (90%) for (i) any three (3) consecutive month period or (ii) six (6) months in any twelve (12) month period then QF's failure to meet the AGC Status Performance Requirement shall constitute an Event of Default pursuant to Section 7.1.

AGC Setpoint Response Performance Requirement:

The AGC Setpoint Response Performance Requirement for each Month is that the AGC Setpoint Response Performance Metric for the Month must be less than or equal to five (5). The AGC Setpoint Response Performance Metric for each Month will be calculated as follows:

$$\text{Root Mean Squared Error (RMSE)} = \sqrt{\sum_{i=1}^{n}\frac{(\text{AGC Setpoint}_i - \text{BESS Energy Output}_i)^2}{n}}$$

Where:

AGC Setpoint = AGC Setpoint value in MW for the 6-seconds period

BESS Energy Output = the energy (MW) either delivered from the BESS or to the BESS for the 6-seconds period

n = total 6-second AGC periods in the Month for which there was a non-zero AGC Setpoint Signal

i = 6-seconds data point

For the avoidance of doubt, all 6-second periods for which the AGC Setpoint = 0 MW will be excluded from the calculation of RMSE.

If the AGC Setpoint Response Performance Metric is greater than five (5) for (i) any three (3) consecutive Month period or (ii) six (6) months in any twelve (12) Month period then QF's failure to meet the AGC Setpoint Response Performance Requirement shall constitute an Event of Default pursuant to Section 7.1.

ATTACHMENT 9

CRITICAL MILESTONES AND REQUIRED MILESTONE DATES

Critical Milestone	Required Milestone Date	Evidence of Achievement of Critical Milestone
Full execution of the Interconnection Agreement	Within thirty (30) days after QF is presented with an executable version of the Interconnection Agreement.	An executed copy of the Interconnection Agreement
Achieve "Site Control", defined as QF obtaining: (i) ownership and title to the entire Site; (ii) a valid and binding leasehold interest in the entire Site through at least the end of the BESS Service Term; or (iii) binding and irrevocable options to acquire the interests set forth in the foregoing (i) or (ii) that are exercisable in QF's sole and absolute discretion	*[To be inserted]*	A copy of the applicable documents that evidence Site Control, including applicable deeds, leases, options to lease and options to purchase.
Full execution of all Equipment Procurement Agreements by QF and the applicable vendors and suppliers. "Equipment Procurement Agreements" means legally binding contracts entered into by QF and the applicable vendor or supplier for the major equipment components needed to construct and install the Facility pursuant to this Addendum and the CPE Agreement (including all solar photovoltaic modules, inverters, transformers and BESS components for installation at the Facility), and which includes binding	*[To be inserted]*	An executed copy of the Equipment Procurement Agreements with pricing redacted, including a description of the country of origin for all equipment components to be supplied under such agreements.

contract(s) schedules for the supply, installation, completion and commissioning activities for such components that will enable QF to achieve the BESS COD Date by the Required BESS COD Date; provided that the Equipment Procurement Agreements must specifically reference the Facility and provide that the components included therein are reserved and dedicated for installation at the Facility.		
Full execution of the EPC Contract by QF and its contractor(s) that will perform the engineering, procurement and construction activities for the Facility. "EPC Contract" means a legally binding contract(s) entered into by QF with a contractor(s) for the engineering, procurement and construction of the Facility pursuant to this Addendum and the CPE Agreement, and which includes a binding contract schedule for the supply, installation, construction and completion and commissioning activities for the Facility that will enable QF to achieve the BESS COD Date by the Required BESS COD Date.	*[To be inserted]*	An executed copy of the EPC Contract with pricing redacted. To the extent any major equipment necessary to develop and operate the Facility will be procured under the EPC Contract, QF shall identify the equipment to be procured under the EPC Contract.
Achieve Financial Closing, defined the occurrence of all of the following: (i) QF has obtained and has closed on all financing arrangements necessary to obtain funds for	*[To be inserted]*	A letter from an officer of QF certifying that Financial Closing (as defined herein) has occurred.

the anticipated costs of completing construction of the Facility; and (ii) all of the conditions precedent to the availability of funds pursuant to such financing arrangements have been satisfied or waived by the applicable parties (other than customary conditions to each drawdown of a construction loan), and such funds (subject to customary conditions to each drawdown of a construction loan) will be made available for disbursement to QF.		
QF has obtained all Consents required for construction of the Facility	*[To be inserted]*	A matrix of required Consents and a copy of Consents obtained.
Issuance of Interconnection Notice to Proceed	The date by which the Interconnection Notice to Proceed is required to be issued in order for the BESS COD Date to be achieved by the Required BESS COD Date, as such date is set forth in the Interconnection Agreement.	An executed copy of the applicable Interconnection Notice to Proceed under the Interconnection Agreement.
Issuance of Full Notice to Proceed (or equivalent directive) under the EPC Contract	*[To be inserted]*	An executed copy of the applicable Full Notice to Proceed (or equivalent directive) under the EPC Contract.
Delivery to Alabama Power of the Level 3 construction and completion schedule for the Facility under the EPC Contract that has been updated in good faith that supports and reflects that the BESS COD Date will occur by no later than the Required BESS COD Date.	*[To be inserted]*	A copy of the Level 3 construction and completion schedule for the Facility under the EPC Contract that has been updated in good faith that supports and reflects that the BESS COD Date will occur by no later than the Required BESS COD Date.

Fulfillment of all BESS COD Criteria	*[To be inserted]*	Satisfaction of the requirements set forth in the definition of "BESS COD Criteria" in Article 1 of this Addendum.

ATTACHMENT 10

BESS ENERGY STORAGE SYSTEM AND SINGLE-LINE DIAGRAM

[Include description and single line diagram]

ATTACHMENT 11

ANNUAL ENERGY FORECAST

BESS Contract Year	Annual Energy Forecast (MWh)
1	
2	
3	
4	
5	