Appendix DA-1 to Participation Rules Determination of Available Capacity for DAE Auction

Southern Companies are not required to offer into the DAE Auction any Energy: (a) in excess of their total Controlled Capacity or (b) that they reasonably deem necessary to serve their Total Obligations (as defined below). To this end, this Appendix DA-1 sets forth the process for the determination of the quantity of DAE Blocks that Southern Companies will offer into a given DAE Auction.

1.0 Determine Southern Companies' Available Capacity

- 1.1 Determine Southern Companies' Supply Curve
- 1.1.1 Start with Southern Companies' total Controlled Capacity sorted in ascending merit order (i.e., into a "Supply Curve").
 - 1.1.1.1 Such capacity shall include: (a) all steam, combined cycle, and combustion turbine resources dispatched pursuant to the IIC, (b) the portion of hydroelectric resources scheduled by Southern Companies for the Delivery Day, and (c) third-party purchases.
 - 1.1.1.2 The following resources will be placed at the bottom of the supply curve for purposes of determining Available Capacity: (a) nuclear resources, (b) the portion of hydroelectric resources scheduled by Southern Companies for the Delivery Day, (c) third-party purchases, and (d) generating units classified as "must run" for either transmission or generation purposes.
- 1.1.2 Subtract capacity that is unavailable for dispatch due to existing or planned outages, de-rates, or operational constraints.
- 1.2 Determine Southern Companies' Total Obligations
- 1.2.1 Start with Southern Companies' native load and contractual obligations pursuant to the IIC for the Delivery Day based on (a) Southern Companies' load forecast for retail and wholesale native load for the instantaneous peak of the Delivery Day, adjusted appropriately for load forecast uncertainty, and (b) Southern Companies' third-party contractual obligations.
- 1.2.2 Add reliability obligations for Regulating Reserve and Contingency Reserve-Spinning as required by the Southern Balancing Authority consistent with applicable NERC and SERC requirements.

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1.3 The "Available Capacity" is that portion of the Supply Curve in excess of Total Obligations but does not include resources that cannot be committed to supply DAE Blocks for the Delivery Day or uncommitted resources not located in the Southern BAA.

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2.0 Divide Available Capacity into DAE Units, DAE Offer Blocks and DAE Offers

- 2.1 Available Capacity will be divided into DAE Offers each of which contain one or more DAE Offer Block offering one or more DAE Units, subject to the following conditions.
 - 2.1.1 In the case of the marginal committed generating unit(s) (i.e., the last unit(s) presumed to be serving firm obligations), that portion of the marginal generating unit(s) not presumed to be serving firm obligations shall be divided into DAE Offer Blocks containing an appropriate number of DAE Units.
 - 2.1.2 In the case of an uncommitted generating unit with a minimum operating limit of more than 50 MW, a DAE Block may contain more than one DAE Unit to represent the minimum output of that unit; in which case, additional Available Capacity above the minimum output may be offered as additional DAE Blocks as part of a Dependent Offer.
 - The Available Capacity of generating units with less than 50 MW of Available Capacity may be combined and "linked" with other, similar generating units to form DAE Units to the extent practicable.
 - 2.1.4 Insofar as Southern Companies' offer curve must be monotonically increasing in price, DAE Units from a given unit may be "linked" if and to the extent the DAE Units representing lower output levels have higher costs than DAE Units representing higher output levels.

3.0 **Determine Firm LD or Recallable Nature of DAE Blocks**

- 3.1 The quantity of DAE Units equivalent to the capacity of generating units with the following characteristics will be offered through the DAE Auction as Recallable Energy: (i) generating units online, but indicating potential for unexpected outage; (ii) generating units offline, scheduled to return, but indicating potential for delayed return; and (iii) other generating units that cannot reasonably be offered except as Recallable Energy without impairing reliability.
- All DAE Units not offered as Recallable DAE Units will be placed into the DAE Auction for sale as Firm LD Units.

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Appendix DA-2 to Participation Rules Determination of Southern Companies' Offer Prices for DAE Auction

Southern Companies' Offer Prices shall be determined on a unit by unit basis for each resource identified by the process in Appendix DA-1 as being made available for sale in the DAE Auction. Southern Companies' Offer Prices for use in the DAE Auction will be determined using the same methodology whether the DAE Blocks are offered on a Firm LD or Recallable basis. Southern Companies' Offer Price level for capacity made available for sale in the DAE Auction shall include components for Average Variable Costs, and/or Commitment Costs as follows.

1.0 Cost Components

- 1.1 "Average Variable Costs" (expressed in \$/MWh) shall be determined in a manner consistent with the determination of variable dispatch cost pursuant to Article III of the IIC Manual and include cost components associated with marginal replacement fuel cost, variable operation and maintenance expenses, in-plant fuel handling costs, emission allowance replacement costs, and compensation for transmission losses that would otherwise not have been incurred; provided, however, that the marginal replacement fuel cost shall be applied to the average heat rate equation for the unit under consideration rather than the incremental heat rate equation.
- 1.2 "Commitment Costs" (expressed in \$/MWh) shall include startup costs. If the unit has a minimum run time such that it must operate beyond the 16-hour sale period, then Commitment Costs shall also reflect the expected increase in production cost associated with running the unit in subsequent hours. In the case of a combustion turbine or combined-cycle unit, the Commitment Cost may also include an adder associated with maintenance costs associated with incurred start-ups. The Commitment Cost adder (in \$/MWh) shall be spread across DAE Blocks by dividing the total startup costs (in dollars) by the minimum load (low limit operating point) of the unit being committed and by the presumed 16 hours of operation. In the case of DAE Units from units linked in accordance with Section 2.1.3 of Appendix DA-1, Commitment Costs will be spread across the total MW of all the linked DAE Units.

2.0 Determination of Southern Companies' Offer Prices for DAE Units

2.1 Southern Companies' Offer Price for DAE Offer Blocks created in accordance with Section 2.1.1 of Appendix DA-1 shall not exceed the sum of: (a) 110 percent of the associated unit's Average Variable Cost for operating at maximum load (in \$/MWh); and (b) a demand charge of \$21.43/MWh.

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2.2 Southern Companies' Offer Price for DAE Offer Blocks linked in accordance with Section 2.1.2 of Appendix DA-1 shall not exceed the sum of: (a) 110 percent of the associated unit's Average Variable Cost for operating at its low limit operating point (in \$/MWh); (b) 110 percent of the unit's Commitment Costs (in \$/MWh); and (c) a demand charge of \$21.43/MWh.

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- 2.3 Southern Companies' Offer Price for a DAE Offer Block formed in accordance with Section 2.1.3 of Appendix DA-1 shall not exceed the sum of: (a) 110 percent of the MW weighted average of the Average Variable Cost of each of the associated units operating at maximum load (in \$/MWh); (b) 110 percent of the combined Commitment Cost of the units (in \$/MWh); and (c) a demand charge of \$21.43/MWh.
- 2.4 Southern Companies' Offer Price for any DAE Offer Block not determined in accordance with Section 2.1 thru 1.1, above, shall not exceed the sum of: (a) 110 percent of the associated unit's Average Variable Cost for operating at maximum load (in \$/MWh); (b) 110 percent of the unit's Commitment Costs (in \$/MWh); and (c) a demand charge of \$21.43/MWh.

2.5 [Reserved]

2.6 The above formulas shall establish an upper limit for the determination of Southern Companies' Offer Prices. Southern Companies may establish Offer Prices lower than these limits on a unit-by-unit or DAE Offer Block by DAE Offer Block basis so long as such Offer Prices apply to all Bidders.

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Appendix HA-1 to Participation Rules Determination of Available Capacity for HAE Auction

Southern Companies are not required to offer into the HAE Auction any Energy: (a) in excess of their total Controlled Capacity or (b) that they reasonably deem necessary to serve their Total Obligations (as defined below). To this end, this Appendix HA-1 sets forth the process for the determination of the quantity of HAE Power that Southern Companies will offer into a given HAE Auction.

1.0 Determine Southern Companies' Residual Supply Curve

- 1.1 Determine Southern Companies' Supply Curve
- 1.1.1 Start with Southern Companies' total Controlled Capacity sorted in ascending merit order (i.e., into a "Supply Curve").
 - 1.1.1.1 Such capacity shall include: (a) all steam, combined cycle, and combustion turbine resources dispatched pursuant to the IIC, (b) the portion of hydroelectric resources scheduled by Southern Companies for the Delivery Hour, and (c) third-party purchases.
 - 1.1.1.2 The following resources will be placed at the bottom of the supply curve for purposes of determining Available Capacity: (a) nuclear resources, (b) the portion of hydroelectric resources scheduled by Southern Companies for the Delivery Day, (c) third-party purchases, and (d) generating units classified as "must run" for either transmission or generation purposes.
- 1.1.2 Subtract capacity that is unavailable for dispatch due to existing or planned outages, de-rates, or operational constraints.
- 1.2 Determine Southern Companies' Total Obligations
- 1.2.1 Start with Southern Companies' native load and contractual obligations pursuant to the IIC for the Delivery Hour based on (a) Southern Companies' load forecast for retail and wholesale native load for the instantaneous peak of the Delivery Hour and (b) Southern Companies' third-party contractual obligations.
- 1.2.2 Add reliability obligations for Regulating Reserve and Contingency Reserve-Spinning as required by the Southern Balancing Authority consistent with applicable NERC and SERC requirements.

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1.3 The "Available Capacity" is that portion of the Supply Curve in excess of Total Obligations but does not include resources that cannot be committed to supply HAE Units for the Delivery Hour or uncommitted resources not located in the Southern BAA.

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2.0 Offer Capacity Forming Residual Supply Curve into HAE Auction

2.1 The capacity forming Available Capacity will be offered into the HAE Auction in the form of HAE Offers each of which contain one or more HAE Offer Blocks offering one or more HAE Units; <u>provided</u>, however, that the capacity of units with fixed output levels (e.g., combustion turbines) contributing to such uncommitted capacity may be "linked" together in an HAE Block with multiple HAE Units.

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Appendix HA-2 to Participation Rules Determination of Southern Companies' Offer Prices for HAE Auction

Southern Companies' Offer Prices shall be determined on a unit by unit basis for each resource identified by the process in Appendix HA-1 as being made available for sale in the HAE Auction. Southern Companies' Offer Prices for use in the HAE Auction shall be based on the Incremental Variable Costs (as defined below) of the incremental resource(s) that are reasonably anticipated to be serving the sales made as a result of the HAE Auction.

1.0 Cost Components

- 1.1 "Incremental Variable Costs" (expressed in \$/MWh) shall be determined in a manner consistent with the determination of variable dispatch cost pursuant to Article III of the IIC Manual and include cost components associated with marginal replacement fuel cost, variable operation and maintenance expenses, in-plant fuel handling costs, emission allowance replacement costs, and compensation for transmission losses that would otherwise not have been incurred.
- 1.2 "Commitment Costs" (expressed in \$/MWh) shall include fuel startup costs. In the case of a combustion turbine, the Commitment Cost may also include an adder associated with maintenance costs associated with incurred start-ups. If the unit has a minimum run time exceeding one (1) hour, then Commitment Costs shall also reflect the expected increase in production cost associated with running the unit in subsequent hours. The Commitment Cost adder (in \$/MWh) shall be determined by dividing the total Commitment Costs (in dollars) by the full load output of the unit being committed.

2.0 Determination of Southern Companies' Offer Prices

- 2.1 Southern Companies' Offer Price for the HAE Offers associated with online (i.e., spinning), uncommitted, and dispatchable electric capacity from steam generating units shall not exceed the sum of: (a) 110 percent of the Incremental Variable Costs for such Energy (in \$/MWh) and (b) a demand charge of \$21.43/MWh.
- 2.2 Southern Companies' Offer Price for the HAE Offers associated with a combustion turbine shall not exceed the sum of: (a) 110 percent of the associated unit's Incremental Variable Cost for operating at maximum load (in \$/MWh); (b) 110 percent of the unit's Commitment Costs (in \$/MWh); and (c) a demand charge of \$21.43/MWh.
- 2.3 The above formulas shall establish an upper limit for the determination of Southern Companies' Offer Prices. Southern Companies may establish Offer Prices lower than these limits on a unit-by-unit basis so long as such Offer Prices apply to all Bidders.

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