

**Economic Analysis of Capacity Resources**

Supplemental Resources for 2028-2031 Capacity

# Introduction

As explained in the Company’s Application for the Certification of the Winter 2027-2028 (“Winter 27\_28”) Battery Energy Storage System (“BESS”) Request for Proposal (“RFP”) (“Winter BESS Certification”) in Docket No. 56258 and the Company’s Application for the Certification of the 2029-2031 All-Source Capacity RFP (“All-Source Certification”) in Docket No. 56298, capacity needs remain beyond the resources procured through those RFPs to meet the needs of Georgia Power customers beginning in the winter of 2027/2028 through winter of 2030/2031. Therefore, Southern Company Services (“SCS”) and Georgia Power (collectively, the “Company”) evaluated numerous resources that can provide the capacity necessary to meet its customers’ energy needs during this period of extraordinary economic growth in Georgia. This document discusses the Company’s economic evaluation of these resources in support of the Company’s Application for Certification of Supplemental Resources for 2028-2031 Capacity.

# Approach

The Company’s economic evaluation compares the costs and benefits of the proposed Supplemental Resources. The evaluation ranks the resources to determine the least cost options that are able to meet the Company’s capacity needs, as the Company must also consider timing of resource availability. To capture the uncertainty of future fuel prices and carbon pressure, the analysis was performed over a range of fuel prices and carbon price paths, resulting in four distinct planning scenarios. This approach is consistent with typical economic evaluations of resources proposed to meet forecasted needs, such as a capacity RFP and similar procurements. These factors were incorporated within the Company’s economic evaluation of resources, as described in this document.

# Assumptions

The Company modeled the incremental costs and benefits of each resource it evaluated. Costs include capacity costs, capital costs, fixed operations and maintenance (“O&M”) costs, start-up costs, natural gas transportation charges, and other incremental costs to customers. Utilizing the Aurora model, the Company quantified the production cost savings (i.e., energy benefits) of each resource, while also capturing the projected commodity fuel and variable O&M costs.

## Power Purchase Agreements

For each Power Purchase Agreement (“PPA”), the Company’s economic evaluation includes the cost of the PPA as set forth by the terms of each PPA. Capacity costs are fixed costs associated with the capacity payment for each PPA. The start-up cost for a PPA represents the projected cost to start a thermal generating unit, taking into account the anticipated number of starts required under economic dispatch and the cost characteristics of the individual resources. For contracted resources, the per-start cost was specified in the PPA. Firm transportation (“FT”) cost was included for resources that require additional FT, or firm access to natural gas pipeline infrastructure, to provide reliable service. The analysis also considered an accounting lease cost for applicable PPA proposals. Variable O&M, fuel costs, and emissions costs are netted out of the energy benefits and are derived by the production cost model, Aurora.

## New Company-Owned Resources

The costs of new construction for proposed Company-owned resources were included in the economic evaluation. In-service capital costs represent the cost of construction, financing costs, and property taxes. Maintenance capital costs are the projected capital expenditures necessary to maintain reliable operation through the assumed useful life of a resource. O&M includes labor, materials, support services, and overhead costs necessary to operate the plant. O&M costs are broken out between fixed and variable O&M for each study. Fixed O&M is directly reflected in the economic valuation. Variable O&M, fuel costs, and emissions costs are netted out of the energy benefits and are derived by the production cost model, Aurora.

The Inflation Reduction Act (“IRA”) provides opportunities for Investment Tax Credits (“ITC”) and Production Tax Credits (“PTC”) that directly benefit customers. The Company included the assumed benefits of the ITC for BESS. The impact of the ITC on BESS is reflected in the in-service capital costs.

## Transmission

There are no transmission facilities added, modified, or avoided as a result of the Supplemental Resources in this Application. No transmission delivery screens were required for the proposed NEER BESS PPAs or Wadley BESS project since the BESS will initially charge from the existing solar facilities at each site, and the output of the facilities has previously been studied and designated. Similarly, as continuations of existing PPAs, the Tenaska Heard County PPA and the MPC PPA amendment are already modeled throughout the Company’s full transmission study horizon, and the Company will exercise this option to continue transmission service. Therefore, no further transmission screens are needed for the capacity ratings evaluated in this Application.

## Term Equalization

Term equalization is used to evaluate resources with different useful lives, start dates, or end dates. The evaluation timeframe is set to encompass the resource with the earliest start date and the resource with the latest end date. In time periods when a resource starts later than or ends earlier than the set evaluation timeframe, replacement capacity costs are added. The evaluation of these Supplemental Resources employs the evaluation timeframe and costs of replacement capacity that are consistent with the 2029-2031 All-Source RFP evaluation to determine term equalization. The earliest start date setting the evaluation timeframe is in year 2027 and is based on a Company-owned Proposal battery energy storage system resource from the 2029-2031 All-Source RFP. The latest end date setting the evaluation timeframe is in year 2075 and is based on a Company-owned Proposal combined-cycle resource from the 2029-2031 All-Source RFP. The replacement capacity cost is based on a natural gas combined cycle, as agreed in the 2029-2031 All-Source RFP. Using this approach, the Company was able to evaluate these Supplemental Resources and RFP resources on a comparable basis.

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# Summary of Study Results

The following tables represent the net present value (“NPV”) of the net costs associated with each resource that was evaluated. The results are calculated by comparing the cost of each resource net of its benefits, which include energy benefits and market or acquisition-related revenues. The NPV is then divided by the capacity contribution of each resource to the Company’s target reserve margins. This calculation provides a $/kW result for comparison purposes. The results across each scenario are averaged and ranked to establish a relative ranking of each resource.

## Ranking and Summary of Results (2024 NPV $/kW)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Rank | Project | MG0 | HG0 | MG50 | MG0-111 | Average |
| 1 | MPC PPA | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** |
| 2 | Tenaska Heard County PPA | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** |
| 3 | Wadley BESS Project | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** |
| 4 | NEER Decatur BESS PPA | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** |
| 5 | NEER Dougherty County BESS PPA | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** |
| 6 | NEER Washington County BESS PPA | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** |
| 7 | NEER White Pine BESS PPA | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** |
| 8 | NEER White Oak BESS PPA | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** |

## All Scenarios Average Results (2024 NPV $/kW)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rank | Project | Summer Capacity | Winter Capacity | Winter Capacity Equivalence[[1]](#footnote-2) | Capacity Costs | Fixed O&M | Fixed Fuel | Energy Benefit | Renewable Integration Benefit | Transmission Costs | Term Equalization | | Total Evaluated Costs | |
|  |  | MW | MW | MW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | | |
| 1 | MPC PPA | 50 | 50 | 50 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 2 | Tenaska Heard County PPA | 930 | 945 | 945 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 3 | Wadley BESS Project | 260 | 260 | 195 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 4 | NEER Decatur BESS PPA | 200 | 200 | 150 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 5 | NEER Dougherty County BESS PPA | 120 | 120 | 84 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 6 | NEER Washington County BESS PPA | 150 | 150 | 113 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 7 | NEER White Pine BESS PPA | 100 | 100 | 60 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 8 | NEER White Oak BESS PPA | 76 | 76 | 45 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |

## Results for MG0 (2024 NPV $/kW)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rank | Project | Summer Capacity | Winter Capacity | Winter Capacity Equivalence | Capacity Costs | Fixed O&M | Fixed Fuel | Energy Benefit | Renewable Integration Benefit | Transmission Costs | Term Equalization | | Total Evaluated Costs | |
|  |  | MW | MW | MW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | | |
| 1 | MPC PPA | 50 | 50 | 50 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 2 | Tenaska Heard County PPA | 930 | 945 | 945 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 3 | Wadley BESS Project | 260 | 260 | 195 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 4 | NEER Decatur BESS PPA | 200 | 200 | 150 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 5 | NEER Dougherty County BESS PPA | 120 | 120 | 84 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 6 | NEER Washington County BESS PPA | 150 | 150 | 113 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 7 | NEER White Pine BESS PPA | 100 | 100 | 60 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 8 | NEER White Oak BESS PPA | 76 | 76 | 45 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |

## Results for HG0 (2024 NPV $/kW)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rank | Project | Summer Capacity | Winter Capacity | Winter Capacity Equivalence | Capacity Costs | Fixed O&M | Fixed Fuel | Energy Benefit | Renewable Integration Benefit | Transmission Costs | Term Equalization | | Total Evaluated Costs | |
|  |  | MW | MW | MW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | | |
| 1 | MPC PPA | 50 | 50 | 50 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 2 | Tenaska Heard County PPA | 930 | 945 | 945 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 3 | Wadley BESS Project | 260 | 260 | 195 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 4 | NEER Decatur BESS PPA | 200 | 200 | 150 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 5 | NEER Dougherty County BESS PPA | 120 | 120 | 84 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 6 | NEER Washington County BESS PPA | 150 | 150 | 113 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 7 | NEER White Pine BESS PPA | 100 | 100 | 60 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 8 | NEER White Oak BESS PPA | 76 | 76 | 45 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |

## Results for MG50 (2024 NPV $/kW)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rank | Project | Summer Capacity | Winter Capacity | Winter Capacity Equivalence | Capacity Costs | Fixed O&M | Fixed Fuel | Energy Benefit | Renewable Integration Benefit | Transmission Costs | Term Equalization | | Total Evaluated Costs | |
|  |  | MW | MW | MW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | | |
| 1 | MPC PPA | 50 | 50 | 50 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 2 | Tenaska Heard County PPA | 930 | 945 | 945 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 3 | NEER Decatur BESS PPA | 200 | 200 | 150 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 4 | NEER Dougherty County BESS PPA | 120 | 120 | 84 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 5 | NEER Washington County BESS PPA | 150 | 150 | 113 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 6 | Wadley BESS Project | 260 | 260 | 195 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 7 | NEER White Pine BESS PPA | 100 | 100 | 60 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 8 | NEER White Oak BESS PPA | 76 | 76 | 45 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |

## Results for MG0-111 (2024 NPV $/kW)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rank | Project | Summer Capacity | Winter Capacity | Winter Capacity Equivalence | Capacity Costs | Fixed O&M | Fixed Fuel | Energy Benefit | Renewable Integration Benefit | Transmission Costs | Term Equalization | | Total Evaluated Costs | |
|  |  | MW | MW | MW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | $/kW | | |
| 1 | MPC PPA | 50 | 50 | 50 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 2 | Tenaska Heard County PPA | 930 | 945 | 945 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 3 | Wadley BESS Project | 260 | 260 | 195 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 4 | NEER Decatur BESS PPA | 200 | 200 | 150 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 5 | NEER Dougherty County BESS PPA | 120 | 120 | 84 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 6 | NEER Washington County BESS PPA | 150 | 150 | 113 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 7 | NEER White Pine BESS PPA | 100 | 100 | 60 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |
| 8 | NEER White Oak BESS PPA | 76 | 76 | 45 | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | **REDACTED** | | | **REDACTED** |

1. ELCC capacity ratings are incremental, net of any existing paired solar resource capacity [↑](#footnote-ref-2)