

**Economic Analysis of Capacity Resources**

2023 Integrated Resource Plan Update

# Introduction

As stated in the 2023 Integrated Resource Plan (“IRP”) Update, Georgia’s economy has continued to thrive, bringing rapid economic expansion and an unprecedented increase in the demand for energy to the state. This rapid economic expansion requires Georgia Power Company (“Georgia Power” or “GPC”) to develop or procure additional capacity resources so that it can continue to provide reliable electric service to its customers. 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 2023 IRP Update.

# Approach

The Company’s economic evaluation compares the costs and benefits of resource options identified in the 2023 IRP Update. The evaluation ranks the resources to determine the least cost options that are able to meet the Company’s capacity need. 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 five distinct planning scenarios. This approach is consistent with typical economic evaluations of resources proposed to meet forecasted needs, such as a capacity request for proposals (“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 cost 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 (“PPA”)

For each 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. An additional sum of $3/kW-yr was included consistent with the additional sum approved for capacity resources in the 2022 IRP[[1]](#footnote-2) and requested in this 2023 IRP Update. 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. For any sales to a third party, the expected sales revenues are credited as a benefit to customers.

## 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 battery energy storage systems (“BESS”) and PTC for solar resources. The impact of the ITC on BESS is reflected in the in-service capital costs. The PTC benefits for solar resources are reflected in the additional benefits.

## Acquisitions

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## Transmission

The Company also completed transmission screening analyses to determine the impacts of each resource. These screening analyses include considerations related to deliverability for each resource, which is the ability to transfer energy from the resource across the bulk power system. The screening analyses identified certain reliability issues that can necessitate transmission system upgrades, which can take several years to complete. Therefore, the Company included both the capital costs as well as the potential impact to capacity contributions in the economic assessment of each resource. The impacts to the capacity contributions, or timing of transmission system upgrades, are reflected in the term equalization costs line items of the Company’s economic evaluation. Transmission system upgrade costs are included in the transmission line item of the evaluation.

## Term Equalization

To conduct an evaluation of proposed resources with varying unit lives and term lengths, the evaluation period must be based upon the life of the longest-lived resource being evaluated. For the 2023 IRP Update that resource is Plant Yates Units 8-10, which has an expected service life of 45 years. The Company analyzed the economics of each resource consistent with its proposed term, or the expected remaining service life in the case of resources the Company proposes acquiring. The Company then performed a similar economic assessment for replacement capacity for the balance of the evaluation period. The replacement capacity used for the balance of the period was assumed to be a dual-fueled combustion turbine (“CT”), consistent with the cost of Plant Yates Units 8-10. Using this method, the Company was able to evaluate each resource on a comparable basis over a 45-year period.

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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 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)

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

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1. Docket No. 44160. [↑](#footnote-ref-2)
2. **REDACTED** [↑](#footnote-ref-3)