The Illustrative Costs and Benefits of Distributed Solar Generation in Georgia

2022 Integrated Resource Plan

Introduction

The purpose of this document is to present the results of an illustrative analysis to determine the impacts of distributed solar penetration in Georgia. The purpose of this analysis is to develop a general expectation regarding the costs and benefits of distributed solar in Georgia and to assess the impacts to the operation of the Georgia Power Electric System.

Process and General Approach

This analysis of the costs and benefits of distributed solar was performed according to the processes and methodologies described in the document titled "A Framework for Determining The Costs and Benefits of Renewable Resources in Georgia" ("Framework"). An assumption was made for the purposes of these calculations that the distributed solar could be implemented overnight, thus 2022 is the first year of the study. For clarification, the distributed solar block analyzed in this study is added to Georgia Power Company's ("Georgia Power" or the "Company") existing planning case to determine the incremental costs and benefits.[1]

Summary of Illustrative Results

Table 1 contains a summary of the results for the next 1,000 MW of distributed solar. The results[2] shown in Table 1 are levelized across 30 years beginning in 2022. The value shown in each category is incremental to the base case and represents the benefit or cost of an additional 1,000 MWs of distributed solar to the Georgia Power electric system. The acquisition or procurement costs of distributed solar facilities are ***not*** included in this analysis.

[1] In this case, the existing planning case refers to Georgia Power's 2022 moderate gas zero-dollar carbon base case including all existing solar and wind commitments but not including those renewable resources recommended as part of the 2022 Integrated Resource Plan.

[2] All values are in $/MWH of solar generation. Positive values represent benefits. Negative (red) values represent costs. The values shown are not indicative of any specific value of distributed solar generation in any particular year, and should not be used to price any particular distributed solar program. Should there be a need to develop such pricing mechanisms, an analysis should be performed using consistent Framework methodologies and project-specific details and assumptions.

Table 1: Levelized Costs and Benefits of Distributed Solar Generation ($/MWH)

Avoided Energy Costs	REDACTED
Deferred Generation Capacity Costs	REDACTED
Avoided Distribution Losses	REDACTED
Deferred Transmission Investment	REDACTED
Integration Cost	($3.36)
Total Net Avoided Costs	REDACTED

Figure 1 provides a pictorial representation of the results shown in Table 1.

Figure 1: 30 Year Levelized Costs and Benefits of Distributed Solar Generation ($/MWH)

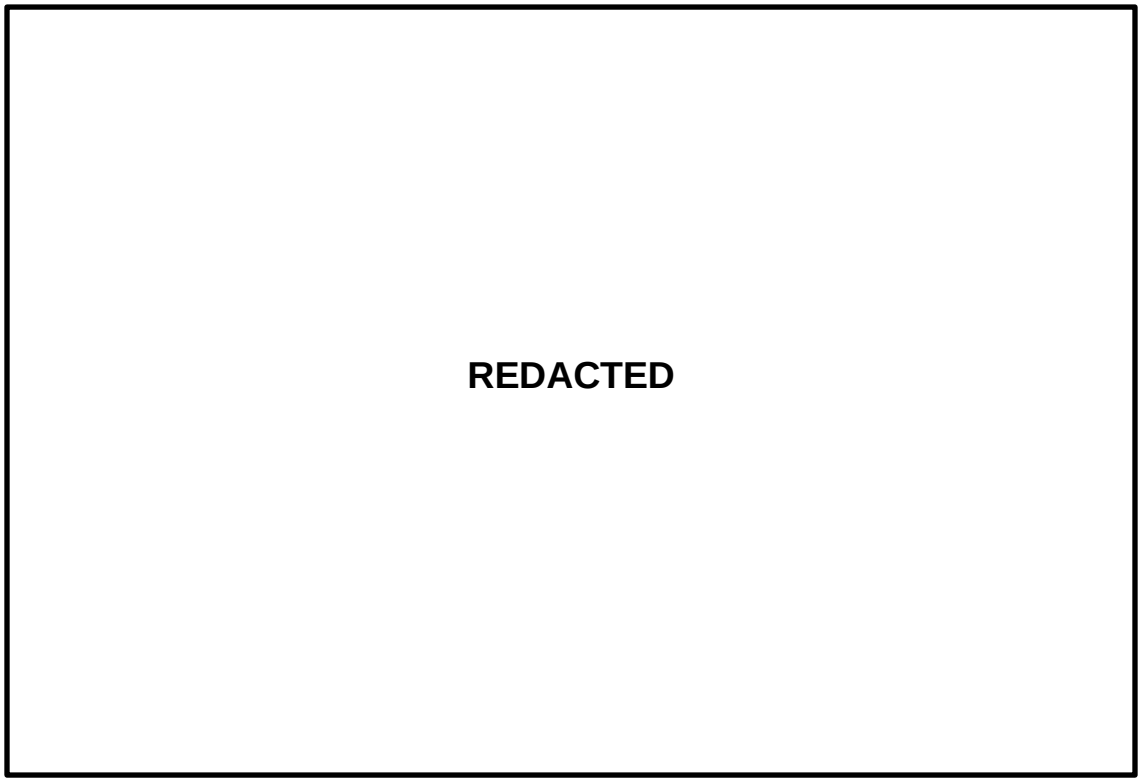
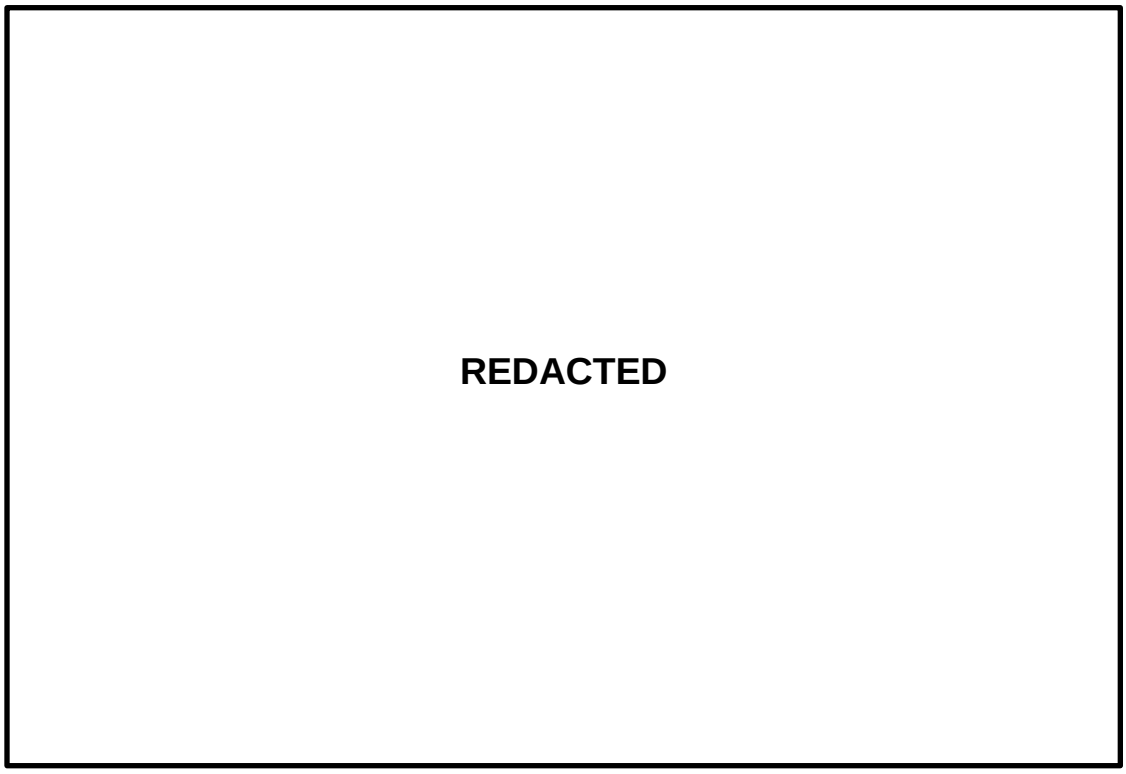


Figure 2 illustrates the benefit and cost impacts for 10, 15, 20, 25, and 30 year terms on a levelized basis. The values in Figure 2 are illustrative and should not be used to infer any specific value of distributed solar generation in any particular year and should not be used to price any particular distributed solar program. Should there be a need to develop such pricing mechanisms, an analysis should be performed using consistent Framework methodologies and project-specific details and assumptions.

Figure 2: Levelized Costs and Benefits of Distributed Solar Generation ($/MWH)



Conclusions

A number of conclusions can be drawn from these results. First, because of how these specific results were calculated and the assumptions used in calculating them, one conclusion that ***should not*** be made from these results is that solar can or should be added on the system at rates derived from these particular solar cost benefit results. These results are based on a number of assumptions that were made for the purpose of determining the relative impacts of adding distributed generation solar on the system and not for the purpose of determining costs and benefits for any particular project or program. Any specific solar project or program should be evaluated in a similar manner using the Framework along with the appropriate assumptions associated with that program or project.

Conclusions that ***can*** be drawn from these results include the following important observations:

1. Excluding acquisition costs, the total benefit provided by distributed generation solar exceeds the total cost caused by distributed generation solar.
2. Compared to the avoided energy benefits provided by distributed generation solar, the deferred generation capacity costs and deferred transmission investment benefits are relatively small.