UTILITY-SCALE SOLAR LAND USE IN GEORGIA

2025 STATUS UPDATE

Carl Vinson
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UNIVERSITY OF GEORGIA

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The data in this report is as of June 2025

Cover Photo Credit: Georgia Power website.

TABLE OF CONTENTS


Photo Credit: Carter Farms. SolAmerica Energy.

EXECUTIVE SUMMARY

Solar power has grown rapidly in Georgia in recent years, driven by energy diversification efforts, rising energy demand, and improved cost-competitiveness. Nearly all utility-scale solar in the state has been constructed on farmland or forest land, which are already experiencing significant conversion pressures from other, often more permanent, development.

This report quantifies the current and expected land area devoted to utility-scale solar in Georgia, places this land use in the broader context of statewide farmland and forest land change, and highlights basic considerations for policymakers, landowners, and communities.

Key Findings

- **Current Capacity:** As of June 2025, Georgia has 5,274 megawatts (MW) of operational utility-scale solar across 155 facilities in seventy-five counties, representing an estimated 21,098 to 36,921 acres of land.
- **Planned Capacity:** Another 4,127 MW across nineteen facilities is planned and expected to come online by 2030, requiring an estimated 16,507 to 28,887 acres.
- **Current and Planned Capacity Combined:** Combining the operational and planned solar facilities in Georgia results in an expected total of 9,401 MW of solar capacity in the state by 2030, representing between 37,604 to 65,808 acres in utility-scale solar across the state.
- **Future Growth Potential:** Additional solar beyond the operational and planned facilities is uncertain. Relying solely on approved utility plans, Georgia could see up to an additional 4,000 MW by 2035, translating to 16,000 to 28,000 acres.
- **Speed of Growth:** 81% of utility-scale solar has become operational in the last seven years since 2019.

Land Use Context

- Georgia's total land area is 37 million acres, including 24.4 million acres of forest land and 9.9 million acres of farmland.
- Current and planned utility-scale solar is estimated to occupy less than 0.2% of Georgia's total land area, less than 0.15% of all farmland, and less than 0.3% of all forest land in the state.
- Analysis by UGA's Warnell School of Forestry and Natural Resources found that 55% of operational solar facilities were built on forest land and 43% on farmland.
- In Georgia, 91% of total operational and planned MW capacity is located in 27 counties, five of which (Jeff Davis, Mitchell, Decatur, Taylor, and Wayne) host 43% of the total operational and planned utility-scale solar MW capacity.

Photo Credit: 2024 DOE American-Made Solar Photo Competition, Agriculture & Solar Category Runner-up

INTRODUCTION

Energy demand in Georgia is rising with increasing population growth, economic development, and technological innovation. To meet this demand, electricity generation continues to evolve across a mix of sources, including natural gas, nuclear, and renewables.

Among the fastest-growing energy sources is utility-scale solar power. As of September 2025, Georgia ranks seventh nationally in installed solar capacity, with over 7,400 megawatts (MW) across utility-scale, residential, and community systems.[1] Of that total, approximately 5,200 MW comes from utility-scale facilities.[2] Solar supplies about 7.5% of the state's electricity generation, enough to power more than 880,000 homes.[3] The remainder of Georgia's electricity comes primarily from natural gas (38%), nuclear (33%), and coal (15%).[4]

Several factors have contributed to the expansion of utility-scale solar, including improved cost-efficiency, policy incentives, energy market trends, demand from large-scale and residential customers, and generally shorter lead times for construction compared to other power generation sources. At the same time, the larger physical land requirements of utility-scale solar have prompted greater scrutiny from landowners, communities, and elected officials.

Solar development is occurring against the backdrop of broader land use change across Georgia, particularly farmland and forest land conversion. Economic pressures on landowners, rising land values, and an aging farming population have led many landowners to consider alternative revenue sources. Some landowners have chosen to lease their land for solar energy generation to maintain ownership, generate income, and potentially keep the land in production during and/or after the lease. However, these benefits are often limited to the individual landowner, and questions remain about the broader community and environmental impacts.

Public discourse around solar siting has become increasingly complex, with competing concerns about energy reliability, environmental impacts, economic development, and rural preservation. Local governments and citizens have expressed both interest and concern about the implications of expanding utility-scale solar in their communities. These discussions are further challenged by inconsistent information and rapid policy shifts.

In this context, this UGA Institute of Government report provides an overview of utility-scale solar development and its relationship to land use in the state. The report aims to inform state and local decision-making by addressing the current extent of utility-scale solar and land use in Georgia; projections for solar capacity expansion and associated land requirements; trends in land conversion; and identifying basic opportunities and considerations for landowners, communities, and policymakers when evaluating land use for solar.

SECTION 1

LAND USE TRENDS

The state of Georgia encompasses 37 million acres of land, of which 24.4 million are classified as forest land and 9.9 million are classified as farmland.[5,6] Of the forest land, 55% lies in private, industrial ownership, 29% lies in corporate ownership, 9% lies in public ownership, and 7% is owned by the forest industry.[7] Of farmland, 45% lies in crop land, 35% lies in woodland, 12% lies in pastureland, and 8% lies in other land uses.[8]

While the state of Georgia still boasts extensive acreage in agricultural and forest land, this number is declining. Low-density residential development is the primary driver of this land-cover change. Over the last fifty years, Georgia's developed land grew by 2.9 million acres, most of it in low-intensity development. These low-intensity developments are defined as a mixture of constructed material and vegetation where impervious surfaces (e.g., smaller paved roads, single-family housing) account for 20% to 49% of the land.[9] [i]

Since 1974, two million acres of forest have been cleared or converted to another land cover, and 2.6 million acres of agricultural land have been converted to different land covers. This farmland and forest land loss coincides with the state's increasing population. As of July 1, 2024, Georgia had an estimated 11.18 million residents, representing an increase of nearly 1.49 million residents since 2010.[10] The Governor's Office of Planning and Budget projects that Georgia will add another 1.12 million residents by 2035, and up to two million more people by 2050.[11]

Another contributing factor to this loss of land is the rising average age of farmers. Based on the 2022 census, the USDA has found that the average age of farmers in Georgia is now 59.[12] Producers 55 and older now account for more than 60% of Georgia's agriculture producers. Nationally, as farmers retire over the next two decades, an estimated 350 million acres of farmland are expected to change hands, creating opportunities for developers to purchase or lease land for other uses.[13]

The remainder of this report identifies the amount of land currently used for utility-scale solar in the state of Georgia and considerations for evaluating the impact of that land use.

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[i] The Georgia Land Use Conservancy, in collaboration with Georgia Tech Center for Spatial Planning and Visualization, have developed the "Georgia Now & Forever" project. The project's purpose is to analyze and gain an understanding of our state's shifting land cover over the past fifty years including but not limited to, housing, development, solar siting, forests, and farmland. https://georgiaconservancy.org/gnf/

SECTION 2

EXISTING SOLAR

2.1 Operational Solar Facilities in Georgia

As of June 2025, there are at least 155 operational utility-scale solar facilities representing over 5,200 MW of capacity across the state of Georgia. These sites are located in 75 counties, with representation in each regional commission's footprint in the state. The exact acreage of these facilities is unknown. However, we estimate this solar capacity utilizes between 21,098 to 36,921 acres of land. This section describes the data and methodology used to calculate Georgia's existing acreage in operational utility-scale solar and includes a map showing solar distribution across the state.

First, to determine the current amount of operational solar facilities, we used the U.S. Energy Information Administration's (U.S. EIA) June 2025 interim report on operational photovoltaic (PV) solar developments and cross-checked its information with utility providers.[ii] Utility providers are required to regularly report a significant amount of information to the U.S. EIA, including their electric generator inventory.[iii] However, utility providers use different thresholds for categorizing "utility-scale" solar in internal tracking. Thus, for the purposes of this report and for consistency, we included all generating facilities identified in the U.S. EIA report for the purposes of displaying MW capacity by county.[iv] The threshold for reporting a facility to U.S. EIA is when a facility's total generator nameplate capacity is **1 MW or greater** and **the facility is connected to the local or regional electric power grid**.[14] [v] This report identifies **155 utility-scale solar facilities in Georgia**.

Then, we estimated the range of total acreage associated with these 155 facilities based on their MW capacity. While the U.S. EIA report includes significant information about each facility, it does not include facility acreage. The required acreage depends on several factors, including the type of solar panels installed and site-specific factors, such as local setback requirements, avoidance of environmentally sensitive areas (e.g., wetlands or floodplains), topographical constraints, and shade from surrounding features. To gauge the acreage of land used for solar, we evaluated several estimates of the number of acres required to support 1 MW of solar capacity.

[ii] Utilities consulted included Georgia Power and Green Power EMC.

[iii] The reporting requirements are based in authority provided by Section 13(b) of the Federal Energy Administration Act of 1974.

[iv] Capacities reported in this preliminary inventory are best estimates of current generating capacity but are not meant to be capacity commitments by the associated facilities (U.S. EIA 2025).

[v] The total generator nameplate capacity is the sum of the maximum ratings in MW on the nameplates of all applicable generators at a specific site. For photovoltaic solar, the total generator nameplate capacity is the sum of the AC ratings of the array (U.S. EIA 2022).

A regularly cited estimate developed by researchers affiliated with the Lawrence Berkeley National Laboratory, part of the U.S. Department of Energy's Office of Science, found the nationwide, median acreage requirement for solar tracking systems is approximately 5.56 acres to generate 1 MW of power. For fixed-tilt systems, the median size is approximately 3.57 acres.[15] [vi] Another commonly referenced acreage estimate from the Solar Energy Industries Association states that a utility-scale solar facility may require between 5 to 7 acres per MW of generating capacity.[16] Finally, the U.S. Geological Survey hosts the U.S. Large-Scale Solar Photovoltaic Database, which includes most utility-scale solar facilities' locations and array boundaries. From this database, a typical solar facility in Georgia ranges from 4.36 acres to 6.55 acres required to generate 1 MW.[17] [vii] Based on the literature and available data, a range of 4 to 7 acres for 1 MW of capacity was used to estimate land use and potential acreage requirements of solar in Georgia.

Table 1 in Appendix A lists all 155 operational solar facilities included in the June 2025 U.S. EIA report byname, county, associated MW capacity, and estimated acreage range. Figure 1 shows the total MWs of solar production by county and the MW capacity and location of each individual solar facility greater than 25 MW.

Using this methodology, the **total capacity of the 155 operational facilities is 5,274 MWs** and the **associated land-use required is an estimated 21,098 to 36,921 acres.** The individual facilities shown on the map range from the 25 MW Baxley facility in Appling County to the 260 MW Wadley Solar facility in Jefferson County. While there are solar facilities throughout the state, Taylor, Jeff Davis, Mitchell, and Decatur Counties host the greatest operational MW capacity. With over 400 MW of solar capacity in each county, this represents more than 1,600 to 2,800 acres of land currently in solar in each of the four counties.

It is important to acknowledge that solar exists in the state beyond what is captured on this map. Approximately 2,000 MW of additional solar capacity in Georgia is not utility-scale and is instead categorized as residential, commercial, or community solar. Utilities, including Georgia Power, have smaller projects known as distributed generation (DG) solar throughout the state, and private landowners have "behind-the-meter" installations that provide power entirely or primarily for on-site use. DG usually connects to distribution level power lines versus utility-scale projects, which typically connect to large-scale transmission lines. There is no readily available, consistent reporting that captures these other types of solar installations. However, they are smaller and may be sited on rooftops or other already developed land. Overall, the impact of these solar facilities on land use (specifically conversion from farmland and forested lands) is significantly smaller by site and overall compared to the utility-scale solar facilities captured above.

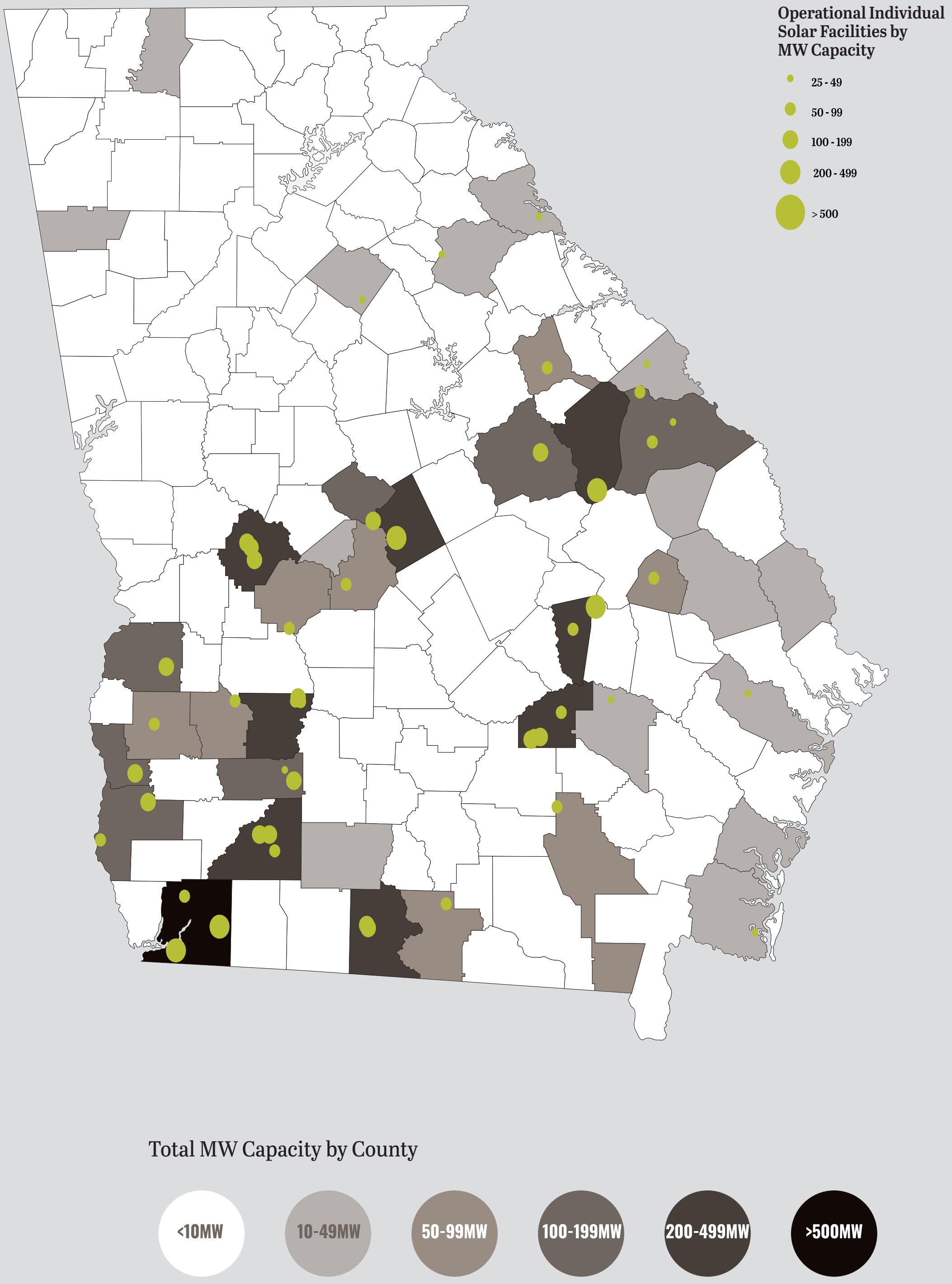
Figure 1. Operational Utility-Scale Solar Facilities in Georgia

MW stands for megawatt. Of the 155 operational solar facilities identified on this map, fifty individually produce greater than 25 MW. These appear as dots, sized according to MW capacity. Each county is also shaded based on the total MW capacity of solar located in that county, with a darker shade indicating a higher total MW capacity in that county. Source: U.S. EIA.

[vi] Solar systems can be fixed tilt, which remain stationary, or tracking, which adjust direction throughout the day to follow the sun.

[vii] This range represents the interquartile range of the 137 solar facilities identified in the database that are located in Georgia. The smallest acreage requirement in this database is 0.6 acres/MW for a 1.5 MW facility, and the largest is 16.4 acres/MW for a 1.1 MW facility, representing outliers in the dataset. This dataset does not include all facilities ultimately included in this report.

Figure 1. Operational Utility-Scale Solar Facilities in Georgia



2.2 Quantifying Farmland and Forested Land Conversion to Solar

To better understand how the growth of utility-scale solar is making an impact on land use in Georgia, we engaged the UGA Warnell School of Forestry and Natural Resources to conduct an evaluation of land conversion to solar in Georgia between 2000 and 2024. The team used land cover categorization data and visual identification through satellite imagery, latitude and longitude included in the aforementioned U.S. EIA report of operational solar facilities, and cross-checked with the United States Geological Survey's U.S. Large-Scale Solar Photovoltaic Database. With this data, Warnell faculty were able to visually identify 130 of the 155 listed operational solar facilities in Georgia. Sites that could not be definitively identified were not included in the analysis. The acreage footprint of each site was hand-digitized, which resulted in accounting for nearly 38,600 acres of land associated with solar facilities. This is higher than the average range calculated in Section 2.1 of 21,098 to 36,921 acres because the manually defined footprints included more area outside of the solar panels, with the intent of capturing a more holistic environmental footprint.[18]

To evaluate the type and amount of land cover in Georgia converted to solar between 2000 to 2024, the Warnell faculty then conducted two analyses. First, they compared the land cover categorization of each site through the U.S. Geological Survey's National Land Cover Database (NLCD) between 2000 and 2024; and second, they conducted a manual satellite imagery analysis to visually determine the prior land cover before construction of the solar facility.

The results of both analyses show that a majority of **land converted to solar was agricultural and/or forest (natural and timber) land, with slightly more forest land than agricultural land.** The percentage distribution between agricultural, forest, and other land uses is shown in Figures 2 and 3.

Figure 2. Land Cover Converted to Utility-Scale Solar: Forest versus Agricultural Satellite Imagery Analysis

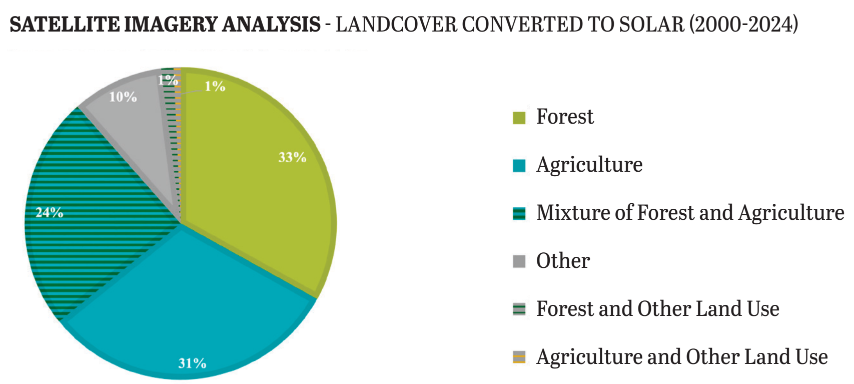
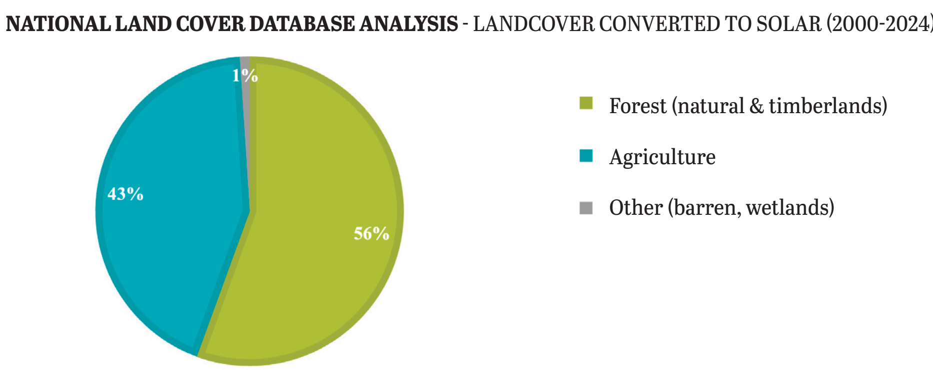


Figure 3. Land Cover Converted to Utility-Scale Solar: Forest versus Agricultural Land Cover Database Analysis



SECTION 3

PLANNED SOLAR IN GEORGIA

3.1 Planned Facilities

As of June 2025, nineteen utility-scale solar facilities are planned, representing over 4,100 MW of capacity across the state. These planned solar facilities are located in fourteen counties; four of which currently do not have operational utility-scale solar capacity: Bacon, Hancock, McDuffie, and Wilcox.[viii] While the exact acreage of these planned facilities is not known, based on our calculations **we estimate this solar capacity would utilize between 16,507 to 28,887 acres of land.** This section describes the data and methodology used to estimate Georgia's expected additional acreage in planned utility-scale solar and includes a map showing the distribution of planned solar across the state.

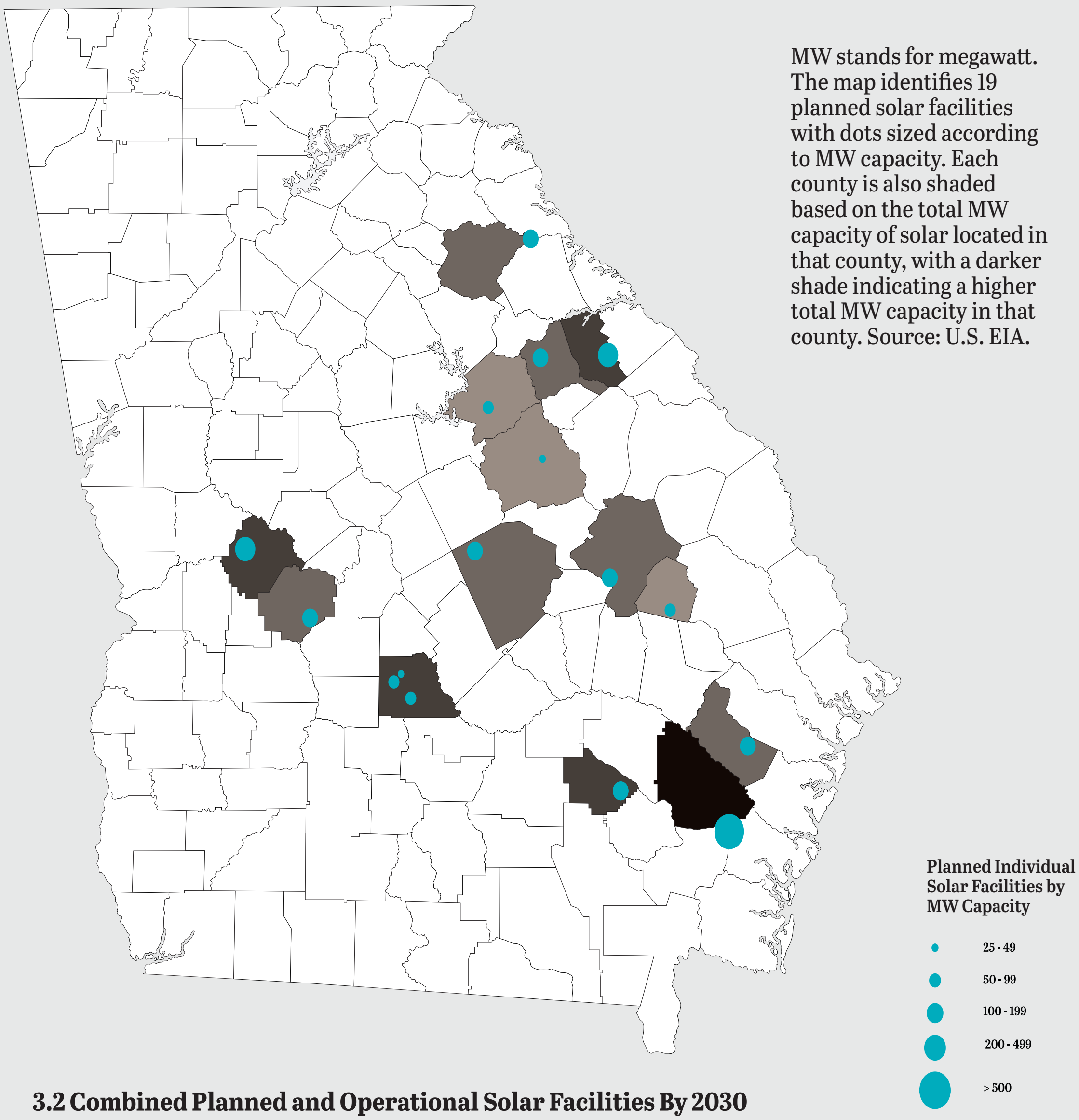
To determine the amount of planned solar facilities, we cross-checked the U.S. EIA June 2025 interim report on operational solar developments directly with Georgia utility providers, including Georgia Power and Green Power EMC.[19] The threshold for reporting a planned solar facility to U.S. EIA is as follows: 1) the facility's proposed total generator nameplate capacity will be 1 MW or greater; 2) the facility will be connected to the local or regional electric power grid; and 3) the facility is expected to begin commercial operation within five years.[20] Again, we used an average range of 4 to 7 acres to support 1 MW of capacity to estimate land use.

The total nameplate capacity of the nineteen planned facilities is 4,127 MW with the associated potential land use ranging from 16,507 to 28,887 acres. The individual facilities shown on the map range from two 50 MW facilities (SR Rochelle II facility in Wilcox County and Sandersville Solar facility in Washington County) to the 1,200 MW Pepper Hammock Solar and Storage facility in Wayne County. Over half of the planned solar capacity is in Wayne County, with 2,100 MW planned, translating to 8,400 to 14,700 potential acres of land.

Table 2 in Appendix A lists the nineteen planned solar facilities included in the June 2025 U.S. EIA report by name, county, associated MW capacity, and the estimated acreage range. Figure 4 below shows the total planned MW of solar capacity by county and the MW capacity and location of each planned solar facility greater than 25 MW, including all planned facilities.

[viii] The 14 counties are Bacon, Candler, Emanuel, Hancock, Laurens, Liberty, Macon, McDuffie, Oglethorpe, Taylor, Warren, Washington, Wayne, and Wilcox.

Figure 4. Planned Utility-Scale Solar Facilities in Georgia



MW stands for megawatt. The map identifies 19 planned solar facilities with dots sized according to MW capacity. Each county is also shaded based on the total MW capacity of solar located in that county, with a darker shade indicating a higher total MW capacity in that county. Source: U.S. EIA.

3.2 Combined Planned and Operational Solar Facilities By 2030

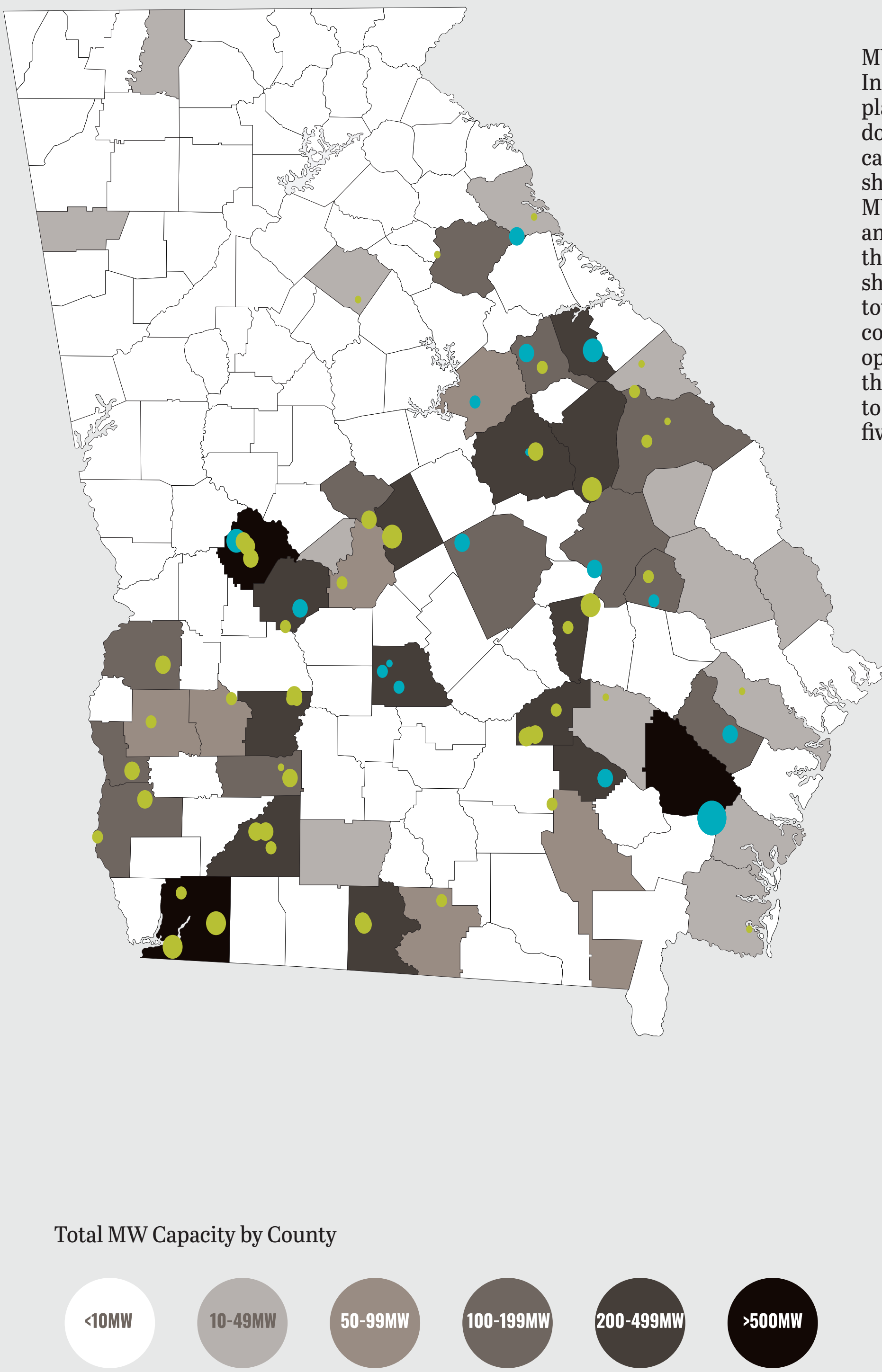
Combining the operational and planned solar facilities in Georgia results in an expected total of 9,401 MW of solar capacity in the state by 2030, representing a total of 37,604 to 65,808 acres in utility-scale solar across the state. While utility-scale solar is present across the state, it is concentrated in certain areas and counties. **91% of total operational and planned MW capacity is located in twenty-seven counties, five of which host 43% of the total capacity.**[ix]

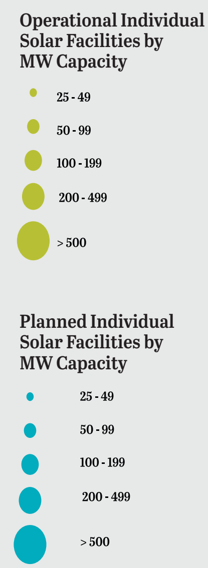
The operational and planned facilities are shown combined in Figure 5.

[ix] The five counties expected to host 43% of the total operational and planned solar capacity in Georgia are Decatur, Jeff Davis, Mitchell, Taylor, and Wayne.

Figure 5. Operational and Planned Combined Utility-Scale Solar Facilities in Georgia

MW stands for megawatt. Individual operational and planned facilities appear as dots, sized according to MW capacity. Each county is also shaded based on the total MW capacity of operational and planned solar located in that county, with a darker shade indicating a higher total MW capacity in that county. This only captures operational facilities and those confirmed as planned to come online in the next five years. Source: U.S. EIA.





3.3 Solar Land Use in the Context of Georgia's Total, Agricultural, and Forestry Lands

To provide context, we estimated acreage for all operational and planned utility-scale solar compared to their relative percentage of total acreage in Georgia, as well as total farmland and forest land acreage. The estimated land use requirements of all operational and planned utility-scale solar as calculated in Sections 2 and 3 represent between 0.1% to 0.18% of Georgia's total land mass of 37 million acres. If all solar was sited on farmland, it would represent 0.38% to 0.66% of that land use. If all solar was sited on forest land, it would represent 0.15% to 0.27% of forest land.

Table 1. Total Operational and Planned Utility-Scale Solar and Estimated Land Use, with Associated Percentage of Georgia Land, Farmland, and Forest Land

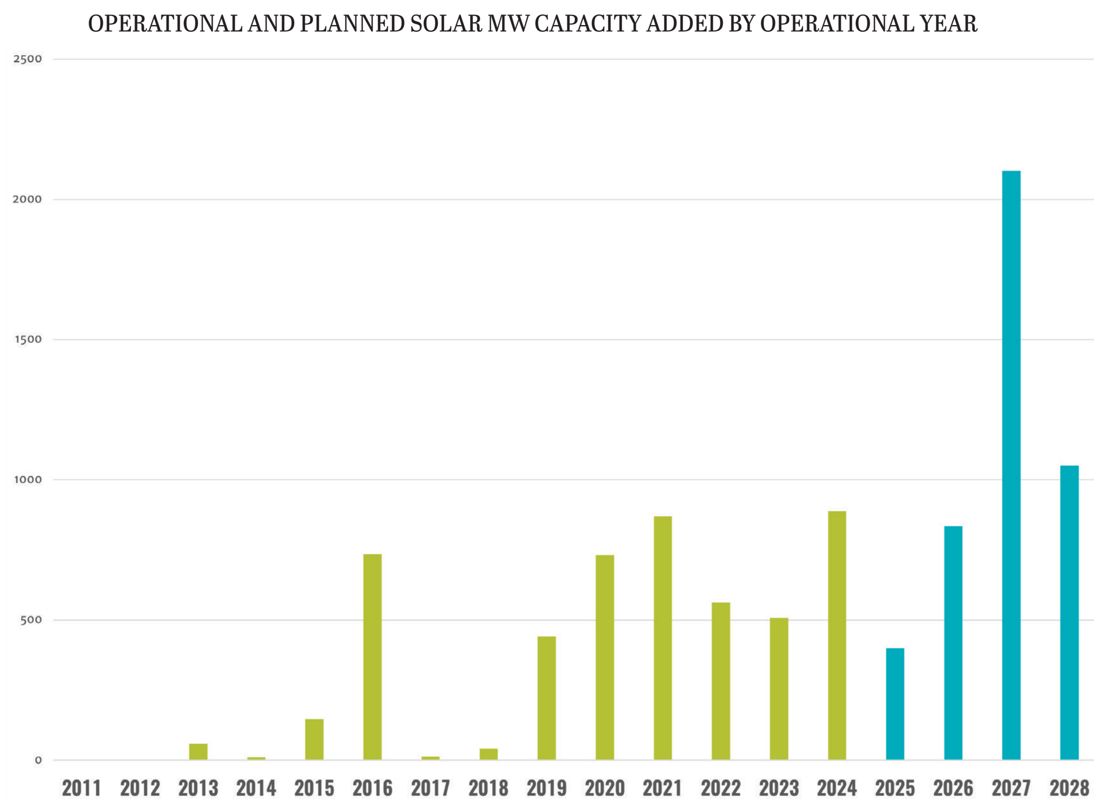
Type	Nameplate Capacity (MW)	Lower Bound Acreage (4 acres/ MW capacity)	Upper Bound Acreage (7 acres/ MW capacity)
Operational	**5,274**	**21,098**	**36,921**
% Share of GA Land		0.06%	0.10%
% Share of GA Farmland		0.21%	0.37%
% Share of GA Forest Land		0.09%	0.15%
Planned	**4,127**	**16,507**	**28,887**
% Share of GA Land		0.04%	0.08%
% Share of GA Farmland		0.17%	0.29%
% Share of GA Forest Land		0.07%	0.12%
Total	**9,401**	**37,604**	**65,808**
% Share of GA Land		0.10%	0.18%
% Share of GA Farmland		0.38%	0.66%
% Share of GA Forest Land		0.15%	0.27%
Applying Maerz & Hepinstall-Cymerman (2025) - 43% of Total from Farmland		***16,170***	***28,297***
% Share of GA Farmland		*0.16%*	*0.29%*
Applying Maerz & Hepinstall-Cymerman (2025) - 56% of Total from Forest Land		***21,058***	***36,852***
% Share of GA Forest Land		*0.09%*	*0.15%*

However, these percentage ranges are much higher than the actual percentage range because solar is sited on both farm and forest lands. Applying the percentages of farmland versus forest land utilized for solar identified by UGA's Maerz and Hepinstall-Cymerman, we estimate that current and planned utility-scale solar represents 0.16% to 0.29% of all farmland and 0.09% to 0.15% of all forest land in Georgia.[21]

3.4 Growth Rate of Solar

Unlike other land uses, the use of land for utility-scale solar is a very recent use, with 81% of utility-scale solar facilities coming online in the last seven years between 2019 and 2025. This growth has occurred as farm and forest land use has been in decline for fifty years. Meanwhile, total MW capacity for solar is projected to nearly double in the next five years (Figure 6).

Figure 6. Added MW Capacity of Utility-Scale Solar in Georgia by Operational Year (Operational and Planned)



MW stands for megawatt. This chart reflects the total MW that came online during each year through 2024, and the total planned MW capacity to come online each year from 2025 to 2028. As of June 2025, 260 MW of capacity was operational with the remaining 140 MW of capacity expected to come online later in 2025. Source: U.S. EIA.

SECTION 4

FUTURE SOLAR

Beyond the confirmed facilities planning to be operational in the next five years, utilities continue to plan to meet energy demands over horizons extended to ten or more years. Insights can be drawn from overall market projections and other indicators.

4.1 Utility Planning for Additional Solar

Each utility conducts analysis and planning to project future power demand and how to meet that demand. Georgia Power, as an investor-owned utility, is required to submit plans and gain Georgia Public Service Commission approval through its Integrated Resource Plan (IRP) process. The state's electric membership cooperatives (EMCs) and municipal electric utilities gain approval from their respective governing authorities. While each utility has separate planning processes and approvals, they also collaboratively plan for grid needs and reliability through Georgia's Integrated Transmission System.[22]

As of the writing of this report, Green Power EMC does not have additional utility-scale solar planned beyond those facilities outlined in Section 3.1.[x] In addition, no other EMCs or municipal utilities have stated publicly if they will pursue additional solar capacity, though planning and projections are regularly updated.

Georgia Power's 2025 IRP outlines a significant increase in energy demand and capacity needed to meet the state's needs. Over the next six years, Georgia Power projects approximately 8,500 MW of new total electrical load growth. Up to 4,000 MW of utility-scale solar or other renewables will contribute to a diverse mix of generation resources to meet growing customer demand by 2035.[23] [xi] If the full 4,000 MW were sourced from utility-scale solar, an estimated 16,000 to 28,000 acres would be necessary to satisfy demand.

4.2 Future Projections for Solar

Beyond formal utility plans for future generation capacity, several industry and nonprofit groups have released comprehensive projections for increased solar capacity. The Solar Energy Industries Association (SEIA) anticipates a more modest increase of 3,532 MW in solar energy capacity in Georgia by 2030. The Natural Resources Defense Council (NRDC) has a higher forecast that Georgia's solar capacity will grow to 14,500 MW by 2030.[24] [25]

Another insight into future solar construction is the interconnection queue, a waitlist of potential projects seeking utility analysis to determine the impacts, feasibility, and costs of connecting to the grid. The queue is long and only about 14% are ever built. As of the end of 2024, 14,700 MW of capacity were under study.[xii] Based on historical trends, however, about 2,000 MW of this capacity under study is likely to come online in the future. The analysis timeline for projects in the interconnection queue process are getting longer, often taking up to three years, and projects are making it further through the process before being withdrawn. This uncertain dynamic creates economic feasibility challenges for project developers given the extensive time and costs involved in the process.[26]

Of course, the actual capacity, acreage, location, and speed of future solar development will be impacted by changes in the market, increasing cost efficiencies in manufacturing, technological innovations potentially reducing land use, and the increasing universal demand for electricity, among other factors. In particular, the policy and regulatory landscape affecting solar has shifted quickly in recent years at the local, state, and federal levels, and the impacts of these changes are unknown. A summary of recent policy changes that impact solar is included in Appendix B.

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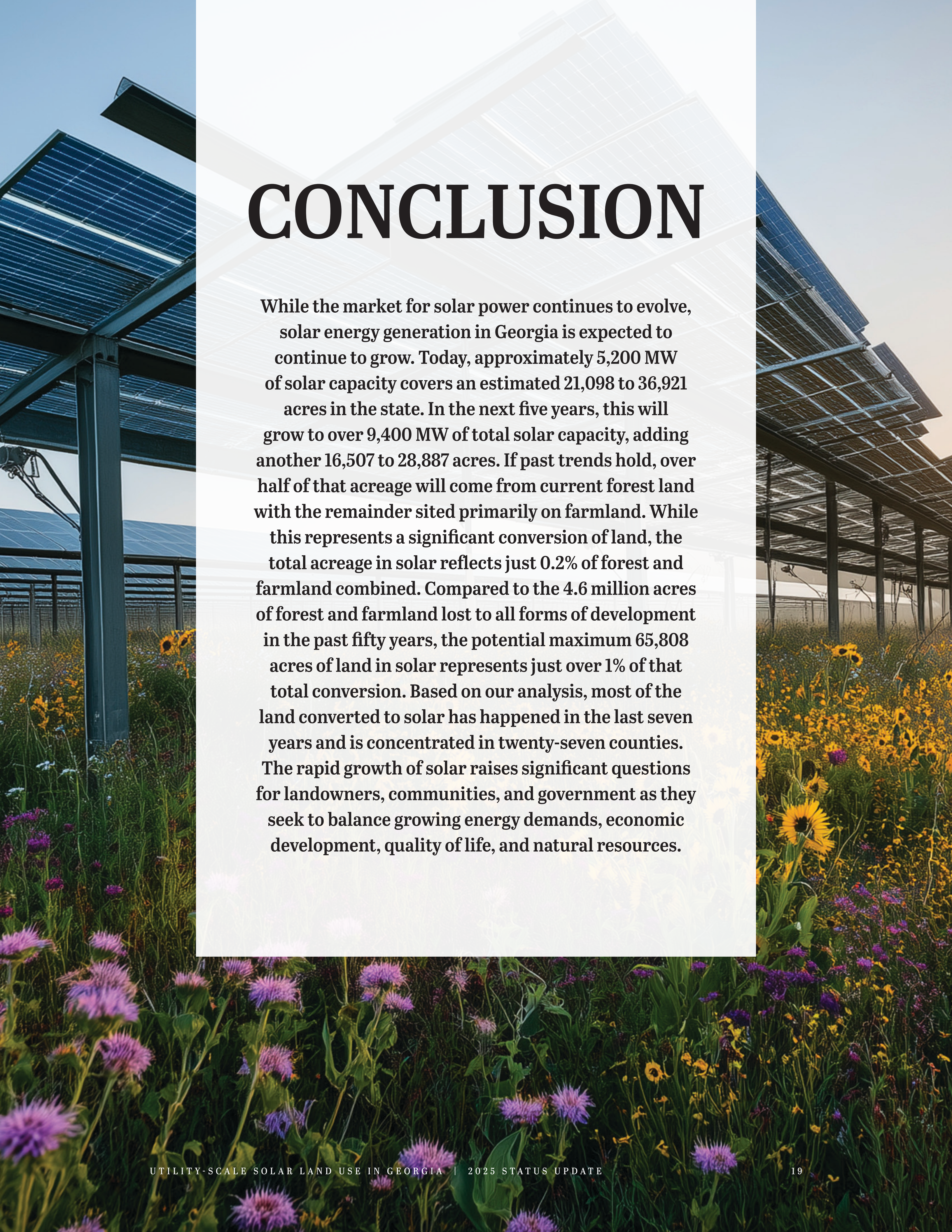
[x] According to information provided directly by Green Power EMC to the authors of this report.

[xi] Georgia Power defines utility-scale solar as 6 MW of capacity or greater. Georgia Power also received approved for 100 MW of distributed generation (DG) solar, which are projects less than 6 MW of capacity.

[xii] According to an analysis of interconnection queue requests conducted by Silicon Ranch utilizing data from the Southern Company OASIS Portal and Georgia Transmission Corporation OASIS Portal.



CONCLUSION

While the market for solar power continues to evolve, solar energy generation in Georgia is expected to continue to grow. Today, approximately 5,200 MW of solar capacity covers an estimated 21,098 to 36,921 acres in the state. In the next five years, this will grow to over 9,400 MW of total solar capacity, adding another 16,507 to 28,887 acres. If past trends hold, over half of that acreage will come from current forest land with the remainder sited primarily on farmland. While this represents a significant conversion of land, the total acreage in solar reflects just 0.2% of forest and farmland combined. Compared to the 4.6 million acres of forest and farmland lost to all forms of development in the past fifty years, the potential maximum 65,808 acres of land in solar represents just over 1% of that total conversion. Based on our analysis, most of the land converted to solar has happened in the last seven years and is concentrated in twenty-seven counties. The rapid growth of solar raises significant questions for landowners, communities, and government as they seek to balance growing energy demands, economic development, quality of life, and natural resources.

CONSIDERATIONS

While solar occupies a small percentage of land in Georgia (less than 0.2%), localized impacts or benefits of solar can be significant for landowners, the community, and natural areas. Involving local stakeholders in the planning process is important. Outcomes vary by site, depending on prior land use, surrounding land cover, and site management decisions. Prime solar sites have more sunny, clear days, flatter land, and proximity to transmission lines, reducing construction and grid connection costs, though new technology allows solar to be installed on steeper slopes.[27] [28] Local governments may also have different permitting and siting regulations. This report identifies basic opportunities and considerations for landowners, communities, and policymakers when evaluating land use for solar.

WORKFORCE & TAX IMPACTS

Utility-scale solar facilities can generate local economic benefits through construction, operations, supply chains, and manufacturing. Technical colleges are incorporating training, and as of September 2025, Georgia had over 5,630 solar-related jobs, ranking 14th nationally, with fifty-one solar manufacturing companies.[29] [xiii]

Local governments can realize increased revenue through sales taxes, permitting fees, and property taxes. Property tax revenue can increase when solar is installed on agricultural land, as it no longer falls under a reduced agricultural tax rate.[30] Impacts on neighboring property values are difficult to isolate from other factors that impact property values. Research findings are mixed, with some studies finding slight decreases, and other literature reviews found no significant impact and the potential for increased values.[xiv]

RESPONDING TO CHANGES IN THE MARKET

The likelihood that farmland or forest land would be converted to other uses, such as housing, is an important consideration. Landowners face complex pressures from evolving agricultural and forestry product markets, including commodity prices, shifting consumer preferences, consolidation in processing facilities, mill and plant closures, transportation costs, labor availability, and changes in land productivity.

In response, landowners may reassess alternative uses of their land. Historically, declining returns led many farm and forest landowners to sell their property for residential or commercial development. In recent years, some have chosen to lease land to solar developers to generate income while retaining ownership and potential for future agricultural use on the land.

AGRIVOLTAICS

Agrivoltaics is the dual use of land for solar energy generation and agricultural production, allowing crop cultivation, livestock grazing, and pollinator habitat to coexist with solar panels. Some solar developers have made solar sites viable agribusiness operations. Research identifies potential benefits, including maintaining or introducing agricultural uses on the land, reducing irrigation costs, providing backup power to farms, diversifying landowner income, and supporting various ecological functions.[31]

Georgia is advancing this innovative business model in several ways:

- Research & Outreach: The University of Georgia's Agrivoltaics Initiative, led by the Odom School of Ecology, is conducting research and public service to scale small agrivoltaics experiments into larger, production-size systems that producers in Georgia can replicate.
- Pollinator-Friendly Solar: Native seed mixes under solar arrays provide habitat for pollinators, which can support surrounding agriculture.[32] Notable examples in Georgia include a 4.6-acre Georgia Power site in Troup County and the 7-acre Carter Farms site monitored by UGA faculty in Plains.[33]

[xiii] For example, Ogeechee Technical College and Southern Crescent Technical College adopted Solar for Schools programs, where students can specialize in electrical applications for installing, inspecting, and repairing solar panels and apply that knowledge to install solar projects on campus.

[xiv] A Virginia Tech study found that solar facilities decreased small-lot home values within three miles while increasing land values within two miles, possibly due to a stigma effect tied to the perspectives and land use history of the local area (Hu et al. 2025). A Louisiana State University literature review concluded that utility-scale solar has the potential to reduce housing values within one-half mile by 1.5%-6.9% (Upton and Talpur 2024) while a SEIA review of research demonstrated no measurable negative impact and the potential for increased values (SEIA 2019).

- Workforce: Silicon Ranch partners with local farmers and ranchers, such as White Oak Pastures in Bluffton, and it directly employs shepherds and ranch hands from local communities and institutions like Abraham Baldwin Agricultural College in Tifton.
- Agribusiness: Solar developers are also raising sheep, contributing to a growing domestic market for sheep products, and research has shown that certain crops like blueberries may benefit from the partial shade of solar panels.[34]

END OF LIFE/DECOMMISSIONING

Since 2024, Georgia has required solar facility lease agreements to include a legally binding decommissioning plan with financial assurances.[xv] Developers must remove all solar infrastructure at the end of the lease term (typically 20-25+ years), including panel foundations, cables, overhead lines, and, if requested, roads and large excavated rocks, and restore the soil and vegetation as closely as possible to its pre-installation condition.[35] Returning the land to its original condition is a notable opportunity compared to more permanent development, such as housing.

There are currently no solar-specific regulations for panel disposal or recycling. Panels are treated as general solid or hazardous waste depending on composition.[36] Recycling up to 95% of raw materials in a panel is possible and may support a domestic supply chain, but currently it costs two to ten times more than landfill disposal in the U.S., potentially due to lack of demand and disposal or recycling requirements.[37] [38] The 2018 *Georgia Model Solar Zoning Ordinance Guide* outlines best practices that may inform local decision-making. [39]

ADDITIONAL ECONOMIC ANALYSIS

Additional economic analyses could compare the impacts of converting farm or forest land to solar versus other land uses. An analysis could address economic impacts to the individual landowners, the agriculture industry, and the local government including, but not limited to, tax revenues, impacts on supply chain, jobs and spending, and cost-benefit analysis to communities.

ECOLOGICAL IMPACTS

Ecological impacts depend on prior land use. Converting row crop agriculture may still support pollinators and wildlife, and agrivoltaics practices can even enhance habitat. In contrast, converting forest land to solar typically results in habitat loss.[xvi]

In 2024, the *Recommended Practices for the Responsible Siting and Design of Solar Development* was released to guide solar companies and stakeholders in addressing wildlife impacts, including site selection, design, construction, decommissioning, species of concern, and additional planning resources.[40] [xvii] This includes strategies to reduce habitat fragmentation and vegetation management choices that support viable habitat. Using native vegetation supports wildlife, reduces erosion, improves groundwater recharge, and protects soil health, but it is more costly and slower to establish, which limits its use in solar projects.[41]

State and federal regulations require permits and mitigation for certain species; for example, impacts to gopher tortoise burrows are prohibited, and Georgia DNR approval is required of plans to avoid impact to or relocate tortoises.[42] [xviii]

SOIL IMPACTS

Like other land development and construction, solar projects disturb the soil and erosion can occur, especially during heavy rains. This can degrade water quality and productivity of soils for farming, as well as undermine the soil's ability to provide ecosystem services like water filtration, erosion control, and nutrient cycling. While pollution prevention measures are often required under permits, they can be limited and best practices beyond those basic measures have been identified by groups such the American Farmland Trust to prevent degradation or even restore soil quality over the life of a project. They emphasize minimizing disturbance during construction and actively managing soils to improve their health over time.[43] Innovative technology solutions like advanced terrain-following tracking systems can mitigate or eliminate grading requirements, lowering project costs and minimizing soil disturbance.

[xv] GA Code § 46-3-69 2024

[xvi] According to information provided by faculty at the UGA Warnell School of Natural Resources directly to authors of this report.

[xvii] These recommended practices were developed by Georgia Department of Natural Resources, US Fish & Wildlife Service, Georgia Wildlife Federation, and The Nature Conservancy.

[xviii] Applicable regulations may include the federal Endangered Species Act and Migratory Bird Treaty Act, as well as the Georgia Endangered Wildlife Act, migratory bird protections, and gopher tortoise regulations at the state level.

APPENDIX A

Table 1. Operational Solar Facilities in Georgia Reported to U.S. EIA with Megawatt Capacity and Estimated Upper and Lower Acreage

Plant Name	County	Nameplate Capacity (MW)	Lower Bound (4 Acres/1 MW)	Upper Bound (7 Acres/1 MW)
Atlanta Falcons Solar	Fulton	0.2	0.8	1.4
Atlanta Falcons Solar	Fulton	0.3	1.2	2.1
Atlanta Falcons Solar	Fulton	0.5	2	3.5
Hickory Ridge Landfill Solar Project	DeKalb	0.6	2.4	4.2
Upson Rocky Creek Solar Plant	Upson	0.8	3.2	5.6
Lakeland Solar Energy LLC	Lanier	0.9	3.6	6.3
Lakeland Solar Energy LLC	Lanier	0.9	3.6	6.3
IKEA Savannah 490	Chatham	1	4	7
Laredo Bus Facility Solar Canopies	DeKalb	1	4	7
Georgia Power at Wadley GA	Jefferson	1	4	7
Valdosta	Lowndes	1	4	7
Greenville	Meriwether	1	4	7
Richland	Stewart	1	4	7
Tri-County Solar Facility	Putnam	1	4	7
Mount Vernon Solar	Walton	1	4	7
Valdosta Prison	Lowndes	1	4	7
Bainbridge Solar	Decatur	1	4	7
Curry Solar	Tattnall	1.1	4.4	7.7
Whitfield Cooper	Whitfield	1.1	4.4	7.7

IKEA Savannah 490	Chatham	1.2	4.8	8.4
Denver Braswell PV	Colquitt	1.4	5.6	9.8
Columbia Bryson	Columbia	1.4	5.6	9.8
Oil Dri 2 Solar	Thomas	1.4	5.6	9.8
Freeman Avenue	Sumter	1.4	5.6	9.8
Georgia Power at Jakin GA PV	Early	1.5	6	10.5
Muscogee Public Works	Muscogee	1.5	6	10.5
Solar BESS Hybrid	Cobb	1.5	6	10.5
Lowndes IDA	Lowndes	1.5	6	10.5
Troup RC50 II	Troup	1.5	6	10.5
Seminole	Seminole	1.6	6.4	11.2
Terrell Riles Stovall	Terrell	1.7	6.8	11.9
Arnold Cochran	Bleckley	1.7	6.8	11.9
Brady Solar LLC	Sumter	1.8	7.2	12.6
McCleskey Cotton	Terrell	1.9	7.6	13.3
Telfair Thompson	Telfair	1.9	7.6	13.3
Ware Avra II	Ware	1.9	7.6	13.3
Bryan Floyd	Bryan	1.9	7.6	13.3
Tift Bowen	Tift	1.9	7.6	13.3
Pierce Eunice	Pierce	1.9	7.6	13.3
Comer Solar	Madison	2	8	14
Columbia Substation	Columbia	2	8	14
Shawnee - GA	Burke	2	8	14
Cairo Solar Farm, LLC	Grady	2	8	14
Cedar Creek Solar, LLC	Barrow	2	8	14
Fountain Folkston	Charlton	2.1	8.4	14.7
Harris Shiloh	Harris	2.1	8.4	14.7
Polk Cedartown	Polk	2.2	8.8	15.4
Richmond Hayes Solar	Richmond	2.3	9.2	16.1
Troup RC50	Harris	2.3	9.2	16.1
Wilkinson DeFore	Wilkinson	2.3	9.2	16.1
Kimberly-Clark Solar	Troup	2.3	9.2	16.1
Lowndes Tycor Farms	Lowndes	2.3	9.2	16.1
Bibb Williams	Bibb	2.3	9.2	16.1

Camp Solar Plant	Meriwether	2.4	9.6	16.8
Waynesboro Community Solar	Burke	2.4	9.6	16.8
Polk Cedartown 2	Polk	2.4	9.6	16.8
Gordon Pine Hall	Gordon	2.4	9.6	16.8
Chattooga Gore	Chattooga	2.4	9.6	16.8
Pleasant Valley Solar	Walton	2.5	10	17.5
Apalachicola	Richmond	2.5	10	17.5
Coody Cochran	Bleckley	2.6	10.4	18.2
Westberry Jesup	Wayne	2.6	10.4	18.2
Rockmart	Polk	2.6	10.4	18.2
Bartow Davidson	Bartow	2.6	10.4	18.2
Bulloch Neville Farms	Bulloch	2.7	10.8	18.9
Putnam Erickson	Putnam	2.7	10.8	18.9
Georgia Power at Swainsboro	Emanuel	2.9	11.6	20.3
Putnam Erikson 2	Putnam	2.9	11.6	20.3
Tift Boyd	Tift	2.9	11.6	20.3
Bulloch Rushing	Bulloch	2.9	11.6	20.3
Gratis Road Solar Facility	Walton	3	12	21
Franklin Milliken	Franklin	3	12	21
Greene Durham	Greene	3	12	21
Meriwether Jackson	Meriwether	3	12	21
Murray Treadwell Farms	Murray	3	12	21
Ware Avra I	Ware	3	12	21
Wilkinson DeFore	Wilkinson	3	12	21
Statesboro Solar LLC	Bulloch	3	12	21
BE Solar LLC	Decatur	3	12	21
Polk County GA S1, LLC	Polk	3	12	21
Reidsville Renewables, Inc.	Tattnall	3	12	21
Turnipseed Solar, LLC	Douglas	3	12	21
Bulloch County GA S4 LLC	Bulloch	3	12	21
Bulloch County GA S3 LLC	Bulloch	3	12	21
Richmond County GA S2 LLC	Richmond	3	12	21
Upson County GA S1 LLC	Upson	3	12	21
Lowndes Cowart	Lowndes	3	12	21

Tift Fletcher	Tift	3	12	21
Gordon Thompson	Gordon	3	12	21
Guyton Community Solar	Effingham	3.6	14.4	25.2
Dublin Solar I	Laurens	4.1	16.4	28.7
Dalton 2	Murray	6.5	26	45.5
Azalea Solar, LLC	Washington	7.7	30.8	53.9
McIntosh Solar	Effingham	10	40	70
Fort Valley State University Solar	Peach	10.8	43.2	75.6
Camilla Solar Plant	Mitchell	16	64	112
Solar Glynn	Glynn	18	72	126
Rincon Solar I	Effingham	18.4	73.6	128.8
Old Midville Solar	Jenkins	19.7	78.8	137.9
Decatur County Solar Project	Decatur	20	80	140
SR Hazlehurst	Jeff Davis	20	80	140
Richland Solar Center	Twiggs	20	80	140
SR Arlington I	Early	20	80	140
SR Odom	Colquitt	20	80	140
Butler Solar Farm 20	Taylor	22	88	154
Baxley	Appling	25	100	175
Simon Solar Farm LLC	Walton	30	120	210
Fort Gordon Solar Facility	Richmond	30	120	210
Kings Bay Solar Facility	Camden	30	120	210
Fort Stewart Solar Facility	Liberty	30	120	210
Pawpaw Solar Plant	Taylor	30.5	122	213.5
Marine Corps Logistics Base Solar	Dougherty	31	124	217
Wolfskin Solar	Oglethorpe	38	152	266
Hazlehurst III	Jeff Davis	40	160	280
Bird Dog Solar	Burke	40	160	280
Sonny Solar LLC	Elbert	40	160	280
Moody Air Force Base Solar	Lowndes	49.5	198	346.5
Live Oak Solar, LLC	Candler	51	204	357
Hazlehurst II	Jeff Davis	52.5	210	367.5
OE_GA3	Mitchell	57.5	230	402.5
SR DeSoto III	Lee	60	240	420

SR DeSoto II	Lee	65	260	455
SR Perry	Houston	68	272	476
SR Cedar Springs, LLC	Early	70	280	490
Hobnail Solar	Burke	70	280	490
SR Terrell	Terrell	74	296	518
White Oak Solar, LLC	Burke	76.5	306	535.5
Decatur Parkway Solar Project, LLC	Decatur	80	320	560
Lancaster Solar GA	Randolph	80	320	560
Blackwater Solar	Ware	80	320	560
SR Ailey	Montgomery	80	320	560
Bulldog Solar LLC	Warren	80	320	560
CPV Stagecoach Solar	Macon	80	320	560
Snipesville	Jeff Davis	86	344	602
SR Lumpkin	Stewart	100	400	700
White Pine Solar, LLC	Taylor	101.2	404.8	708.4
SR Arlington II	Early	102.5	410	717.5
Butler Solar Project 103	Taylor	104	416	728
SR Clay, LLC	Clay	106	424	742
SR Snipesville II	Jeff Davis	107	428	749
SR Snipesville III	Jeff Davis	107	428	749
Dougherty County Solar, LLC	Dougherty	120	480	840
Robins Air Force Base Solar	Bibb	128	512	896
Taylor County Solar	Taylor	148	592	1036
Quitman Solar	Brooks	150	600	1050
Quitman II Solar	Brooks	150	600	1050
Washington County Solar	Washington	150	600	1050
SR DeSoto I, LLC	Lee	165	660	1155
Camilla Solar Energy Project	Mitchell	171.4	685.6	1199.8
Hickory Park Solar Hybrid	Mitchell	195.5	782	1368.5
Decatur Solar	Decatur	200	800	1400
Twiggs Solar	Twiggs	204	816	1428
Cool Springs Solar (Hybrid)	Decatur	213	852	1491
SR Toombs, LLC	Montgomery	250	1000	1750
Wadley Solar	Jefferson	260	1040	1820
		5274	**21098**	**36921**

Table 2. Planned Solar Facilities in Georgia Reported to U.S. EIA with Megawatt Capacity and Estimated Upper and Lower Acreage

Plant Name	County	Nameplate Capacity (MW)	Lower Bound (Acres 4 acres/1MW)	Upper Bound (7 Acres/ 1 MW)
Sandersville Solar	Washington	50	200	350
SR Rochelle II	Wilcox	50	200	350
SR Metter	Candler	79.7	318.8	557.9
Pineview Solar, LLC	Wilcox	80	320	560
Drawhorn Solar	Hancock	80	320	560
SR Bacon	Bacon	85	340	595
SR Rochelle I	Wilcox	90	360	630
SR Bacon III	Bacon	100	400	700
SR Norwood	Warren	107	428	749
SR Bacon II	Bacon	115	460	805
Timberland Solar	Oglethorpe	140	560	980
Brenneman Solar Project	Macon	150	600	1050
Conez Solar, LLC	Emanuel	150	600	1050
Laurens Solar	Laurens	150	600	1050
Crossroads Solar - GA	Long*	150	600	1050
Sandhill Solar 2	Taylor	200	800	1400
Rock House Solar	McDuffie	250	1000	1750
Pepper Hammock Solar and Storage	Wayne	900	3600	6300
Pepper Hammock Solar and Storage	Wayne	1200	4800	8400
		4127	**16507**	**28887**

* The original U.S. EIA dataset listed the Crossroad Solar project in Liberty County, however the latitude and longitude provided in the dataset places the project in Long County. The project developer, Bright-Night, lists the project in Long County on their website.

APPENDIX B

Summary of Policy Changes Impacting Solar in Georgia

As discussed in this report, there are many factors influencing the growth of solar development and how the impacts of that growth are evaluated. One factor is the policy landscape. Federal, state, and local level policy changes affecting solar in the state of Georgia are summarized below.

Georgia Model Solar Ordinance:

In 2018, Emory University, Georgia Tech, and the University of Georgia developed a model ordinance for solar to be used to inform city and county decision-making to prepare for future solar developments and installations. The use of the ordinance is voluntary and sets forth a range of alternatives that local governments may consider when developing solar regulations, zoning, and decommissioning standards.[44]

Inflation Reduction Act & Infrastructure Investment and Jobs Act

The Bipartisan Infrastructure Act, or Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA) passed Congress in 2021 and 2022, respectively. Both pieces of federal legislation created significant incentives and funding programs for solar, which have since been scaled back.

House Bill 300

In 2024, Georgia House Bill 300 went into effect and established specific solar decommissioning standards for the state of Georgia. It requires developers to remove solar installations and restore the land to its prior condition at the end of the lease term. [45]

Senate Study Committee on the Preservation of Georgia's Farmlands

In 2024, the Georgia Senate formed a study committee tasked with evaluating farmland protection measures. A final recommendation by the committee included a report on the acres of Georgia land currently with solar energy projects on them.[46]

Inflation Reduction Act & Infrastructure Investment and Jobs Act Executive Order

In January of 2025, President Trump announced he was suspending all IRA and IIJA disbursements by Executive Order (E.O.) including those that involved clean energy tax credits and grants.[47] A federal judge ordered the Trump administration to resume funding for the IRA and IIJA in April of 2025, but the action is still in litigation.

One Big Beautiful Bill

On July 4, 2025, President Trump signed into law the One Big Beautiful Bill Act, which included a "phase-out"[xix] for solar tax credits. [48]

Renewable Energy Incentives Executive Order

On July 7, 2025, President Trump signed an executive order that directed all federal agencies to eliminate subsidies and tax incentives for wind, solar, and other renewable energy sources. The order also instructs the Treasury Department to enforce termination of clean electricity tax credits, specifically targeting solar facilities, within forty-five days of the One Big Beautiful Bill enactment. Additionally, it directed agencies to review policies and eliminate preferential treatment to renewable energy projects.[49]

Ongoing Federal Agency Actions

On April 21, 2025, the U.S. Department of Commerce released its final tariff amounts on solar cells being imported from Cambodia, Malaysia, Thailand, and Vietnam on top of tariffs already in place on Chinese imports.[50] A significant portion of solar panels installed in the U.S. use materials from these countries.[51]

On August 1, 2025, U.S. Secretary of the Interior Doug Burgum signed an order that directs the Department of Interior to only permit energy projects that are the most appropriate land use when compared to a range of alternatives like nuclear, gas, and coal.[52]

On August 18, 2025, U.S. Secretary of Agriculture Brooke Rollins announced that USDA will no longer fund solar panels on productive farmland or allow solar panels manufactured by foreign adversaries to be used in USDA projects.[53]

Ongoing Local Actions

Georgia is a home rule state, with local governments holding authority over zoning. This results in a patchwork of local zoning regulations for solar, ranging from no zoning process to ordinances that provide certain requirements to outright moratoriums. For example, Thomas County initially passed temporary moratoriums on solar development in the county, but ultimately adopted an ordinance in 2017 that created setbacks, required financial assurances for decommissioning, and changed land use classifications to address solar.[54] As another example, Coweta County adopted an ordinance earlier in 2025 setting minimum and maximum parcel-size requirements for solar installations, among other limitations, and setting a formal application process and criteria.[55]

[xix] Developers must begin construction of their projects within 12 months of the enactment of OBBB to qualify for production and investment tax credits. Projects that begin construction after this 12-month period must be placed in service on or before December 31, 2027, to be eligible for credits. Projects owned by Prohibited Foreign Entities could lose credit eligibility.

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UTILITY-SCALE SOLAR LAND USE IN GEORGIA

2025 STATUS UPDATE