



South Carolina Solar Development Analysis

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Prepared in Q3 2024

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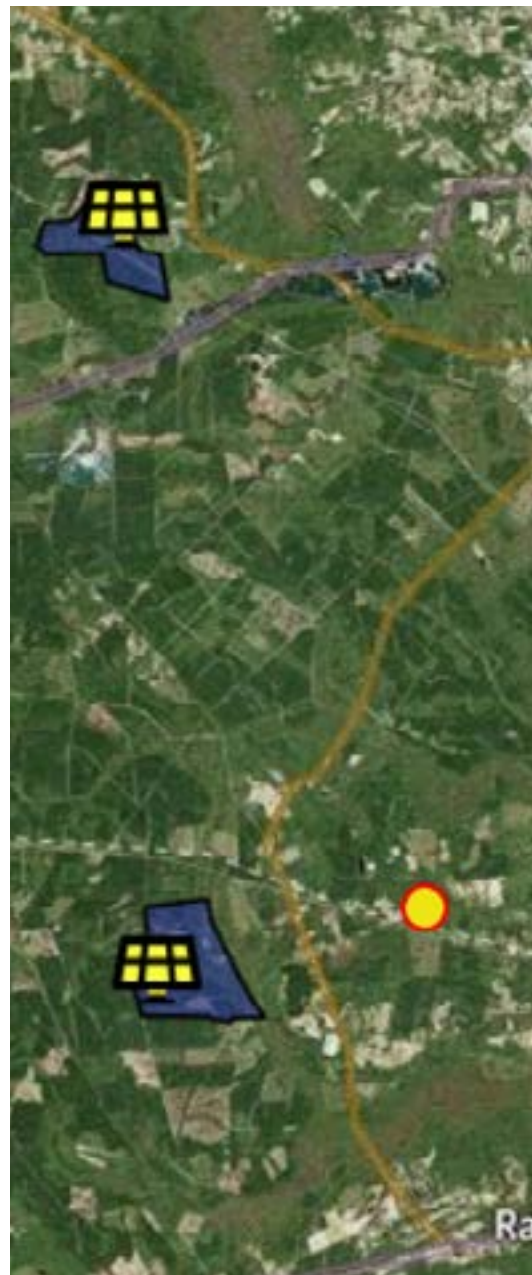
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South Carolina Solar Development ANALYSIS

The state of solar development in South Carolina can be evaluated by key factors such as federal and local regulations, incentives, grid interconnection and integration. The current state of development activity in South Carolina is growing and can be seen in this analysis summarizing all facets of solar energy project development.

We will break down the various federal and state incentives available to solar energy developers in South Carolina and how to access them.

LandGate provides key data to the top developers and financiers in the country. To learn more about access to this platform, or to talk about how to apply the information below to your business, [book time](#) with a member of our dedicated energy markets team.



South Carolina Solar Energy ACTIVITY

Status	SC Solar Farm Count	SC Solar Farm Capacity (MWac)	SC Solar Farm Generation (MWh)
Operating	108	1,503	159,167
Under Construction	9	111.2	27,128
Planned	107	5,954	1,612,127
Queued Projects	10	329	59.610 (est.)
Site Control (Lease Options)	5	560	91,837 (est.)

*est is the estimated peak total electricity generation that those solar farms will produce once operational

As of August 2023, South Carolina has **108 solar farms** already operating with a current capacity of 1,503 MW and a current electricity generation of **159,167 MWh**. South Carolina has a significant amount of operating solar farms compared to the other states in the US, and it has a development of solar farms with 5 solar farms under construction of **10 MW capacity total, 25 planned solar farms with 1,638 MW1 capacity**, as well as 3 Utility-Scale Queued projects and 2 site control projects. Overall, if all planned and under construction farms go into operating status, South Carolina will expand its capacity by 1,648 MW. That's a **110% growth in capacity** for the state.

In South Carolina, the average solar farm size is 116.1 acres producing 13.9 MW of electricity under ideal conditions. So a solar farm in South Carolina needs an average of 8.3 acres per MW of capacity.

Utility-Scale vs. Community

SOLAR

Utility-scale solar refers to solar farms often created and managed by utilities, independent power producers, or energy firms. These projects aim to produce electricity on a large scale and deliver it directly into the distribution grid. These solar farms generally have **more than 10 MW** in capacity. Below is a breakdown of the different types of solar farms and their development statuses.

Utility-Scale

South Carolina is a state for solar development where Dominion Energy, Duke Energy, and Santee Cooper are the main utilities.

A project in queue means that the project enters the interconnection queue of that region waiting for regulatory approval. During this period, the analysis of possible engineering and land factors is

conducted to determine the feasibility of the project to be constructed and connected to the grid. The average amount of time it takes for a farm to go from queue to operational in South Carolina is 23 Months! As per the Santee Cooper Generator Interconnection Queue, South Carolina has seen 76 solar farms added into the queue since 2019, totalling 5.5 GW in capacity.

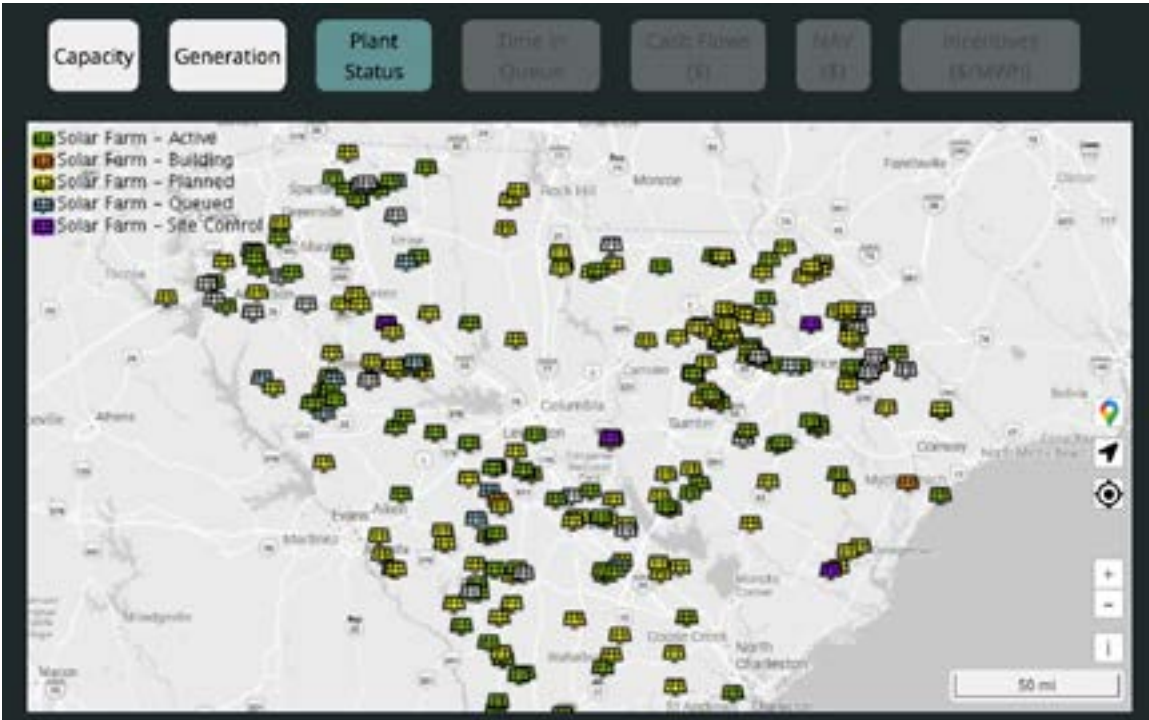
Solar energy provides renewable power and provides thousands of jobs in South Carolina. According to the Solar Energy Industries Association, South Carolina has more than 1,800 MW of installed Solar Photovoltaic Modules. The state is projected to install another 1,300 solar panels in the next five years. This showcases the state government's strong motivation to expand their solar energy network and encourage its residents to get involved with renewable energy; this is reinforced by the diverse set of solar incentives they offer, which are discussed later in this report.

Information about solar projects in South Carolina is available in a digitized form in LandGate's PowerCapital. The interactive map below displays the installed solar photovoltaic capacity and total installations in the state by ZIP code and county.

Independent System Operator of New England (ISO-NE).

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Most Utility Scale solar projects in South Carolina are installed by Dominion Energy, Duke Energy and Santee Cooper Generation.

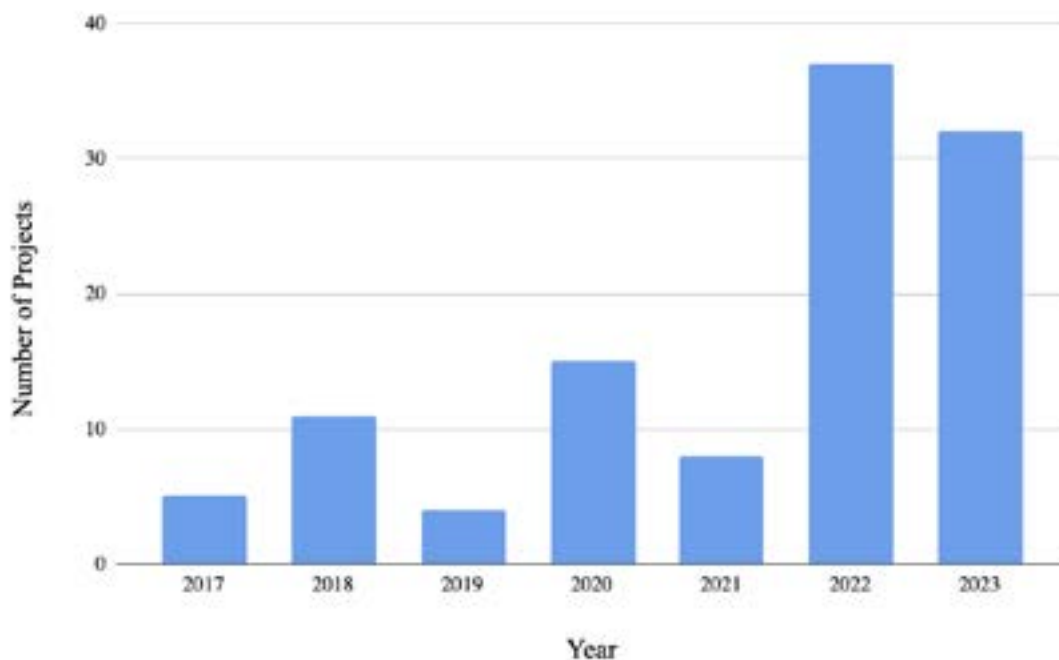
Duke Energy

Duke Energy serves 830,000+ households and businesses in South Carolina, primarily zoning in on Upstate regions. They have proposed significant investments in renewable energy facilities, with plans to add 2,400 MW by 2035 to meet the growing energy demands. Duke Energy continues to pursue an active generation strategy to provide diverse energy sources in South Carolina.

Cluster Queue

The Duke Energy cluster queue represents all DEC state jurisdictional and FERC jurisdictional projects in the interconnection queue that have entered the Definitive Interconnection Study Process. This list comprises 96 Utility Scale solar farms, totalling a capacity of 15.5 GW.

Solar Projects Entered into Cluster Queue (Duke Energy)



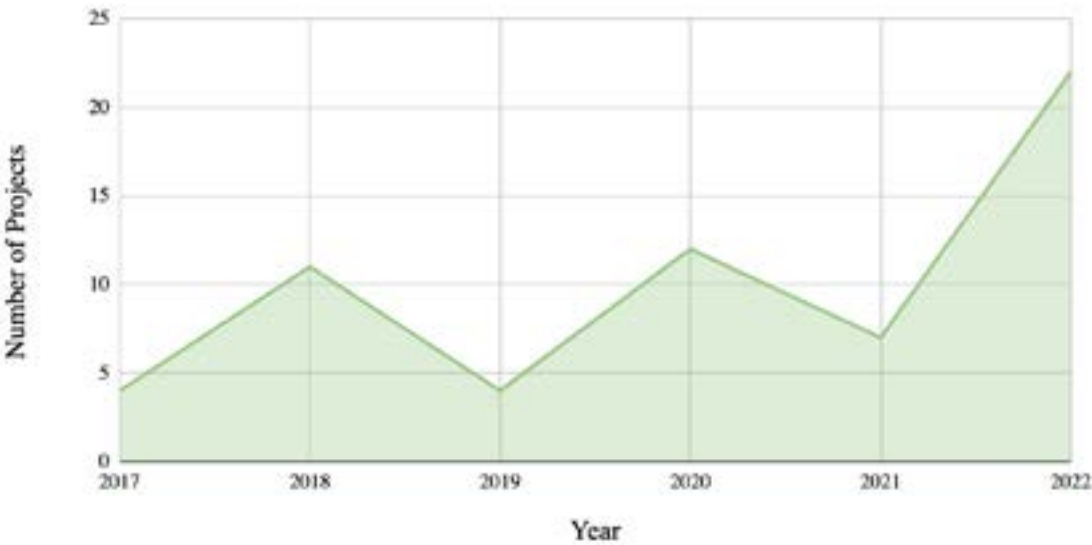
FERC Farms

There are 32 solar farms in the Duke Energy FERC Generator Interconnection Queue, totalling a capacity of 1.8 GW.

Withdrawn Projects

South Carolina has seen a vast influx of solar projects entering the interconnection queue in recent years, but this has also led to a significant number of projects being withdrawn. As the number of proposed projects goes up, so does the number of withdrawn projects. This increasing trend can also be attributed to grid interconnection challenges, regulatory and permitting issues, as well as market and policy uncertainty.

Withdrawn Projects in South Carolina



Dominion Energy

Dominion Energy South Carolina (DESC) is involved in several solar energy projects that collectively add significant capacity to the state’s renewable energy resources. These projects, which were either developed or acquired by DESC, are spread across various locations in South Carolina and have entered service between 2017 and 2021.

Dominion Energy has expanded its solar energy footprint in South Carolina significantly, with over 1000 MW of solar capacity on its system. This expansion is part of the company’s broader commitment to achieving net zero carbon emissions by 2050. Solar energy plays a key role in this commitment, with solar power contributing to more than 20% of Dominion Energy South Carolina’s historic peak capacity. Two prominent solar

Project Name	County	Operational	Features
Seabrook Solar Farm (72 MW) Developed by First Solar	Beaufort County	December 2019	This ground-mounted single-axis tracking facility spans approximately 628 acres and includes around 220,128 photovoltaic panels. It was developed to provide power and renewable energy attributes. This project showcases the utility’s commitment to renewable energy and its integration into the energy mix to serve the community with clean energy.
Solvay Solar Energy Facility (71 MW) Acquired from Adger Solar	Jasper County	December 2017	Occupying 900 acres, this facility underscores the scale of investment in renewable energy sources within the region. It has a long-term power purchase agreement (PPA) with South Carolina Electric & Gas (SCE&G), and the renewable energy certificates (RECs) are sold to Solvay. This collaboration highlights the integration of solar energy into industrial operations and the broader energy market, promoting sustainability and reducing carbon intensity.

Projects Under Site Control

Site Control is land under lease or under option to lease. Solar developers run an initial assessment of the suitability of parcels for solar farms. After they put the land under option, they need time to run their due diligence and submit the project to the queue. When the solar project is about to be approved by the queue, the solar developer exercises the solar farm option agreement to convert it to a solar farm lease agreement. These site control projects have not entered the interconnection queue yet. Currently there are 2 project leases with an estimated capacity of 75 MW. LandGate analyzes county tax & deed assessor records to find lease agreements already in place between developers and landowners. This unique dataset is continuously updated by a process that locates new lease documents within days of new agreements being filed with each county.

How do developers screen and run due diligence for those solar farm projects in site control?

Factors to take into consideration:

- Electricity generation
- Electricity commodity prices (LMP, incentives, PPA)
- Capital costs
- Operating costs
- Timing
- Risks

Using the factors above and a standard solar panel size, the buildable acreage and a land coverage ratio (encompassing row spacing and maintenance spacing) we calculate the maximum number of panels that could fit on the parcel. This helps us estimate the capacity the project lease will add to the grid and calculates a Market Value of the solar project.

Solar PowerVal enables similar capabilities to evaluate land parcels for solar development and get an independent economic report for solar projects of all statuses. This tool allows developers and project financiers to fast-track the process of submitting a feasibility study to the queue for approval through independently produced Engineering & Economic analytics and Solar 8760 reports or evaluate projects and parcels for origination and M&A.

How is a Utility-Scale solar project submitted to the queue to connect to the electric grid?

Typically, the queue submission process within an ISO or Utility area follows similar steps. The solar developer needs to complete and submit an official interconnection request form provided by the ISO or utility, that captures essential project details and starts the interconnection process. Project specifications should include details like name, location (latitude and longitude), point of interconnection, capacity, expected energy production, environmental impact, technology layout- inverters, solar panels, system layout through a Feasibility study with an 8760 report to help initially assess the project's compatibility with the existing grid infrastructure. The Solar developer will also have to pay an initial payment to secure a position in the interconnection queue and contribute towards the cost of initial studies and evaluations conducted by the ISO/Utility. Post the submission of the form, reports and payment, the project is now effectively in the queue.

After the project has entered the queue, Injection reliability study and system impact study is conducted. These studies determine the exact impact of the project on existing infrastructure and identifies any potential network updates required to reliably interconnect the solar project to the grid. Once the study is completed, the developer gets a complete picture of the financial cost of the solar farm with regards to the complete CAPEX and Budget. This helps the decision making process of whether to move forward with the development of the solar project or withdraw the application from the queue. If the project seems viable to move forward the developer signs an interconnection agreement with the ISO/Utility and essentially looks to produce Economic and Financial reports for Bankers and Investors to help facilitate the construction of the solar project.

Commercial, Community, & Behind- the Meter **SOLAR FARMS**

South Carolina's independent, consumer-owned electric cooperatives are creating the largest network of community solar installations in the state, significantly expanding solar energy access to the more than 1.3 million people served by the state's co-ops. The state's electric co-ops launched the Community Solar initiative in 2016, with each participating co-op offering up to 250 kilowatts (kW) of community solar installations for a total of up to five megawatts (MW) of capacity statewide.

Duke Energy

Duke Energy has an extensive shared solar program in South Carolina. As of August 2023, Duke Energy South Carolina Shared Solar subscribers have received bill credits totaling \$640,000 from the generation of 14 GWh of clean renewable energy. These statistics have steadily increased over the last year and are on track to continue improving.

Duke Energy's Shared Solar program makes it possible for any qualified customer to access the environmental and savings benefits of solar energy without installing or maintaining equipment on their own property. In addition to the regular energy bill, customers can pay a monthly subscription fee. That fee funds the customer's share of supporting the operation of a solar facility located in upstate South Carolina.

While the power generated by the solar facility feeds into the Duke Energy electric grid, not homes, customers receive a monthly credit equal to the amount of solar energy their share produced.

Community Solar Program

Currently, South Carolina possesses one of the most digitally developed Community Solar services called Community Solar Platform (CSP). CSP is a renewable energy solutions provider available to utilities, munis/co-ops, asset owners & developers via a highly secure and scalable cloud solution. It offers tools to comply with taxes & security laws, accurate automated on-bill credits, and acquisition and resubscription services.

CSP has partnered with Dominion Energy to offer their community solar product to Dominion Energy electric customers across South Carolina. CSP serves as the administration, managing the customer care and enrollment functions of this program and currently has 6 projects and utilities in South Carolina.

By providing a single software solution to manage complex community solar, the Community Solar Platform helps fill the gaps, govern allocations, lower operating costs, and smooth implementations. Divided into Allocation and Billing categories, their features make investment into shared solar convenient and accessible.

Allocation



- Re-allocate capacity based on replacement customers.
- Monitor the total amount of solar electricity generated each month.

Billing



- Verify the utility's calculation of kWh and the total amount of net metering credits for the renewable energy system delivered to the host meter account.
- Calculate the net metering credits the utility should have assigned to the customers utility account.
- Determine monthly customer payment in accordance with the net metering credit sales agreement.

Dominion Energy

Dominion Energy is one of the most prominent utilities working in South Carolina, with a special focus on community solar. As mentioned earlier, they work collaboratively with Community Solar Project (CSP). This innovative program provides Dominion customers the opportunity to support solar without the commitment of installing solar panels on their homes or maintaining them.

Participating customers choose to subscribe or purchase solar panels from solar farms dedicated to this program. Customers receive a monthly credit on their bill for the electricity generated by their panels. Dominion's Community Solar program is currently fully subscribed, however, if interested in participating, it is possible for users to join Dominion's waitlist.

South Carolina PPA Data

Utility-scale solar can be integrated into the grid and electricity can be sold at a predetermined price thanks to PPAs (Power Purchase Agreements) with utilities or power purchasers. Even if they are unable to put solar panels on their own homes, PPAs for community-scale solar projects allow local participants to profit from solar energy generation. The time and amount of power sales are governed by the PPA's terms, which guarantees a steady market for solar installation.

The average Utility-Scale PPA price in South Carolina is \$41.98/MWh. This price has decreased by 4.0% over the past 3 years.

A lower PPA price means that the cost of power from the particular project is now more competitive when compared to other energy sources. It implies that a solar or wind farm, for example, has become more cost-effective and is now able to offer electricity at a cheaper cost,

making it a more alluring option for consumers. Electricity consumers may benefit from cheaper electricity prices as a result of a drop in PPA prices. This can lower consumers' overall energy expenses and have a positive effect on their electricity bills, whether they are residential, commercial, or industrial customers.

South Carolina PPA Scorecard



Average Utility-Scale PPA price 2023:	\$41.98/MWh
Average PPA price change in the last 3 years	+4.0%
Largest PPA buyers:	Dominion

Federal & SC State Tax Incentives for Solar Developers

South Carolina offers several solar development incentives, on the state and federal level, that make solar power more accessible and affordable. These incentives reduce installation costs and increase the economic appeal of solar projects for residents, businesses, and developers.

The measures include tax credits, net metering, and property tax exemptions, among other incentive programs.

Solar Development Incentive	Type	About
South Carolina Solar Tax Credit	State	This credit provides a reduction of 25% of total solar installation costs, up to \$3,500. This benefit can significantly help diminish the overall cost of switching to solar energy.
Renewable Energy and Energy Storage Property Tax Exemption	State	The state of South Carolina offers a 100% property tax exemption as well. This applies to residential solar installations with a maximum capacity of 20 kW. Thus, the added value to property from solar energy does not increase property taxes for residents.
SCE&G Net Metering program	State	Net metering is a mechanism that credits residents with solar energy installations for the electricity they add to the grid. Thus, South Carolina residents may cover their electricity bills using the solar power they generate.
Federal Solar Tax Credit (ITC)	Federal	This incentive offers a 30% deduction in the cost of installing a solar system from federal taxes. It is valid for residents until 2032.

Other Incentives

RPS Goals:

South Carolina has a voluntary Distributed Energy Resource Program. The legislation allows participating utilities to recover costs connected to meeting a 2021 target of 2% aggregate generation capacity from renewable energy sources.

- 1-10 MW: Facilities sized between 1 MW and 10 MW will make up 1% of aggregate generation (50% of the total target).
- < 1 MW: facilities sized under 1 MW will make up another 1% (another 50% of the total target).

Once a participating utility satisfies the minimum 2% requirement, the utility may invest in renewable energy facilities between 1 MW and 10 MW with a cumulative installed capacity equal to one percent of the utility's previous 5 year retail peak demand average.

Voluntary distributed energy resource programs have been adopted by Duke Energy Carolinas, Duke Energy Progress, and Dominion Energy South Carolina.

Currently, solar energy makes up 2.35% of total energy generation in South Carolina.

Santee Cooper Rooftop Solar Rebate Program:

Specific to Santee Cooper customers, this program offers a rebate of 95 cents per watt for installed solar systems, up to a maximum of \$5,700, for systems up to 20 kW.

Berkeley Electric Cooperative:

Offers a loan program for homeowners to make energy-efficient changes to their home, with up to \$15,000 in loan money at a fair interest rate. This can be beneficial for those looking to install solar panels but are concerned about the upfront costs.



With such a wealth of new data on the state of Solar Development in South Carolina, we imagine you might have questions about how to apply these trends, data, and tools to your own solar development efforts in South Carolina. Our dedicated energy markets team can help walk you through how to access and interpret this information in a way that is relevant to your business needs. Schedule time with our team here to talk one on one.



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