



Arkansas

Solar Development Analysis

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Arkansas Solar Development ANALYSIS

The state of solar development in Arkansas can be evaluated by key factors such as federal and local regulations, incentives, grid interconnection and integration. The current state of development activity in Arkansas 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 Arkansas 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.



Arkansas Solar Energy ACTIVITY

Status	IL Solar Farm Count	IL Solar Farm Capacity (MWac)	IL Solar Farm Generation (MWh)
Operating	17	346	7,663 (est.)
Under Construction	2	355	43,802 (est.)
Planned	13	1,058	505,974 (est.)
Queued Projects	118	23,921	5,592,409 (est.)
Site Control (Lease Options)	7	1,185	111,350 (est.)

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

As of August 2023, **Arkansas has 17 solar farms already operating with a current capacity of 346 MW¹ and a current electricity generation of 7,663 MWh.** Arkansas has a significant amount of operating solar farms compared to the other states in the US, and it has one the largest development of solar farms with 2 solar farms under construction of 355 MW capacity total, 13 planned solar farms with 1,058 MW capacity total, as well as 118 Utility-Scale Queued projects and 7 site control projects.

Overall, if all planned and under construction farms go into operating status, Arkansas will expand its capacity by 1,413 MW. That's a 39% growth in capacity for the state! In Arkansas, the average solar farm size is 97 acres producing 20.3 MW of electricity under ideal conditions. So **a solar farm in Arkansas needs an average of 4.8 acres per MW of capacity.**

Utility-Scale vs. Community-Scale 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. Contrarily, community-scale solar refers to smaller-scale solar power facilities, **under 10 MW**, that are primarily intended to serve local communities or particular user groups. Below is a breakdown of the different types of solar farms and their development statuses.

Utility-Scale

Arkansas is a state for solar development where the state is regulated by Midcontinent Independent System Operator (MISO) and Southwest Power Pool (SPP).

Projects Queued for Development in Arkansas

ISO	Number of Solar Farms	Capacity (MWac)
MISO	143	26,606
SPP	15	2,160

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 Arkansas is 42 Months.** As per the projected in-service dates for the current projects in queue, **Arkansas will most likely add 11 GW of Utility Scale farms by the end of 2025, which is a 75% increase in operational**

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 7 project leases with an estimated capacity of 1,185

Did you know?

LandGate's PowerCapital solution is the only technology suite offering a complete M&A database and research analytics for wind, solar, and CCS project development.

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
- Risk

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

Projects under development in Arkansas

In Arkansas, Entergy Arkansas takes up a significant portion of utility for the state while Electric Cooperatives of Arkansas, Oklahoma Gas & Electric Company (OG&E), and American Electric Power (AEP) are three other large utility suppliers that collectively take up the majority of the market supply.

The state does have net metering, allowing households with small, customer-sited solar panels, or other renewable power generating installations no larger than 25 kilowatts in size to receive credits from utilities for excess electricity sent to the grid. Businesses with renewable electric generating systems that are up to 1 megawatt in capacity are also eligible for net metering.

Moreover, House Bill 1370 was filed this month by two Republicans —

Rep. Lanny Fite of Benton and Sen. Jonathan Dismang of Searcy. The main objective the bill would achieve is to eliminate the 1-to-1 net metering compensation that solar power users currently receive. When you want to get traded for the extra electricity you are generating for credits, the rate at which you are compensated used to be equal to what utilities charge for that power, that is, a 1 to 1. This proposal would eliminate that 1 to 1 rate, and implement what's called two-way billing, essentially providing solar power users with a lower compensation rate for the power they add to the grid, essentially discouraging solar power users.

Arkansas is a state with a lower population density and its terrain is also spaced out in a manner where utility scale solar is the preferred option to community solar. This is true across the United States in states with similar terrain. We can see this with the PPA and LMP data for utility scale farms in Arkansas that it will be far more favorable for solar developers to pursue developing utility scale farms over community solar.

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LMP Data

LMP (Locational Marginal Price) is a pricing mechanism used in wholesale/merchant energy markets to determine the cost of electricity at specific locations (nodes) within the grid. LMP considers a number of variables, including the cost of generating power, transmission constraints, grid congestion, losses, and load at certain nodes or locations within the electrical grid. The prices at which electricity is bought and sold in the market in real time or on an hourly basis are reflected in its calculation, which is done through market procedures.

Arkansas saw the average LMP price increase by 22.5% in the past 3 years with an average price of \$23.04 \$/MWh in 2023. This price is expected to increase by 4.9% in 2024 and attract several renewable energy developers for utility and community scale solar projects. Similarly, consumer electricity purchase cost has also increased for the past few years

in Arkansas. The current commercial electricity rate is 10.24 ¢/kWh which is a 19.1% increase compared to the commercial electricity rate of 8.60 ¢/kWh in 2020. This could have been due to rate increases by Entergy Arkansas that hiked rates by 6.1% in April 2022 and 7.5% in March 2023. This could have been further affected by an increase in the Energy Cost Recovery (ECR) rate from \$9.59/MWh to \$17.85/MWh. Entergy has attributed these rate increases to severe weather conditions in February 2021 and a large under-recovery of balance in the fourth quarter of 2021.

Higher LMP prices correspond to higher electricity costs, which could mean more money for solar installations. When compared to solar projects in areas with lower LMP pricing, locations with higher LMP prices may result in higher revenue. Power purchase agreements (PPAs) and solar project participation in energy markets are both impacted by LMP. The ability to engage in market transactions and maybe land more advantageous PPAs gives solar projects situated in areas with favorable LMP pricing a competitive edge in the electricity markets. LMP can affect the PPAs for solar projects' pricing conditions, lengths, and general allure.

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LMP Scorecard



Merchant Energy Pricing: Market: MISO Hub: Arkansas Hub	
Number of price nodes active:	48
Average LMP price as of 10/01/23:	\$28.22
Average retail price as of 10/01/23 (how much a community solar farm or behind the meter electricity generation sales electricity for + consumer purchase cost)	10.24¢/kWh Current commercial electricity rate 5.90¢/kWh Rate in January 2020, +73.5% incr.
Percentage change in average LMP in the past 3 years	+22.50%
Forecasted percentage change in average LMP Price for 2024:	+4.90%

Average LMP Prices: Historical & Forecasts

Year	Avg LMP Price (\$/MWh)
2018	\$28.90
2019	\$25.95
2020	\$20.44
2021	\$41.75
2022	\$57.90
2023	\$27.77
2024 (est.)	\$33.05
2025 (est.)	\$37.76
2026 (est.)	\$43.26

Based on the LMP and ISOs data in Arkansas, the 2024 average LMP is estimated to be **\$33.05/MWh**, increasing by 19% compared to 2023.

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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 the solar installation.

The average Utility-Scale PPA price in Arkansas is \$37.84\$/MWh. This price has decreased by 16.1% in the past 3 years. This could be due to a drop in average electricity rates in Arkansas, as discussed above. Moreover, the levelized cost of electricity (LCOE) for utility-scale photovoltaic systems fell to \$39/MWh last year. Since PPA prices usually follow the decline in solar's LCOE, this could have also contributed to the

decrease in PPA price in Arkansas.

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

Arkansas

PPA Scorecard



Average PPA price 2023:	\$37.84/MWh
Average PPA price change in the last 3 years	-16.1%
Largest PPA buyers:	Meta

Average PPA Prices:

Year	Price (\$/MWh)
2020	\$42.29
2021	\$37.80
2022	\$37.84
2023	\$37.48

Federal & Arkansas State Tax Incentives for Solar Developers

There are several federal and state incentives available for solar development in Arkansas, intended to encourage the use of solar energy by making solar power more affordable for businesses and organizations that install solar systems. These incentives can improve the financial viability of solar projects since they lower the initial costs and increase the return on investment. Solar project incentives aid in the switch to clean, renewable energy sources, which lower greenhouse gas emissions and slow climate change. Incentives aid in increasing the deployment of solar projects by making solar energy more financially appealing, replacing fossil fuel-based power and lowering the environmental effects related to traditional energy sources.

However, Arkansas residents are eligible for the federal solar tax credit, worth 30% of their system purchase price.

Solar Development Incentive	Type	About
Solar Renewable Energy Certificates (SRECs)	State	Arkansas's SRECs are a financial boon for those generating clean electricity through solar power. By participating in this program, solar system owners not only contribute to a greener future but also enjoy economic benefits, making the transition to solar energy even more appealing.
Net Metering	State	Net metering is a billing mechanism that credits solar energy system owners for the electricity they add to the grid. For example, if a residential customer has a PV system on their roof, it may generate more electricity than the home uses during daylight hours.
The Rural Energy for America (REAP) program	State	In order to help producers save money and utilize renewable energy, the Rural Energy for America Program (REAP) provides grants and loans to farmers and rural businesses interested in making energy efficiency improvements.
Federal Solar Tax Credit (ITC)	Federal	Developers can claim 30% of the installation cost as a credit on their federal income taxes.

Solar Renewable Energy Certificates

Arkansas's SRECs are a program meant to benefit solar system owners and not just aim for a greener future but also reap economic benefits, making the transition to solar energy even more appealing for solar system owners in Arkansas. These are the SREC's offered in Arkansas.

Net Metering

Net metering allows homeowners that create excess energy to use it as a credit on their next electric bill. Although net metering is not mandatory in Arkansas, many providers take advantage of it and offer fair rates. House Bill 1370 is the legislation that was recently passed that stops incentivizing Arkansas citizens from choosing net metering options as they don't have a 1-1 payout for the credits anymore.

Federal Solar Tax Credit, also known as the Investment Solar Tax Credit (ITC)

Federal Solar Tax Credit (ITC) is 30% until 2032 which can be claimed in Arkansas as well. Developers of community-scale and utility-scale

solar projects are eligible for the Federal Solar Tax Credit as long as the solar energy systems they install meet the requirements. The tax credit percentage for community-scale solar and utility-scale solar projects is also 30% of the total project Cost. This means that developers can claim 30% of the installation cost as a credit on their federal income taxes.

The Rural Energy for America (REAP) program

The Rural Energy for America (REAP) program offers loan financing and grant funding for renewable energy systems or energy efficiency upgrades. Agricultural producers and rural small businesses are eligible for REAP funding. Renewable systems, such as solar photovoltaic (PV) pumps below 30MW, are eligible for a grant from \$2,500 to \$1 million.



With such a wealth of new data on the state of Solar Development in Illinois, we imagine you might have questions about how to apply these trends, data, and tools to your own solar development efforts in Illinois. 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. Scan the code to the right to schedule time with our team to talk one on one.



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