



Louisiana

Solar Development Analysis

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Louisiana Solar Development ANALYSIS

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



Louisiana Solar Energy ACTIVITY

Status	LA Solar Farm Count	LA Solar Farm Capacity (MWac)	LA Solar Farm Generation (MWh)
Operating	5	75	2,666,105
Under Construction	1	20	1,561,533 (est.)
Planned	30	856.28	6,017,403 (est.)
Queued Projects	121	22,882	21,802,869 (est.)
Site Control (Lease Options)	10	298	794,351 (est.)

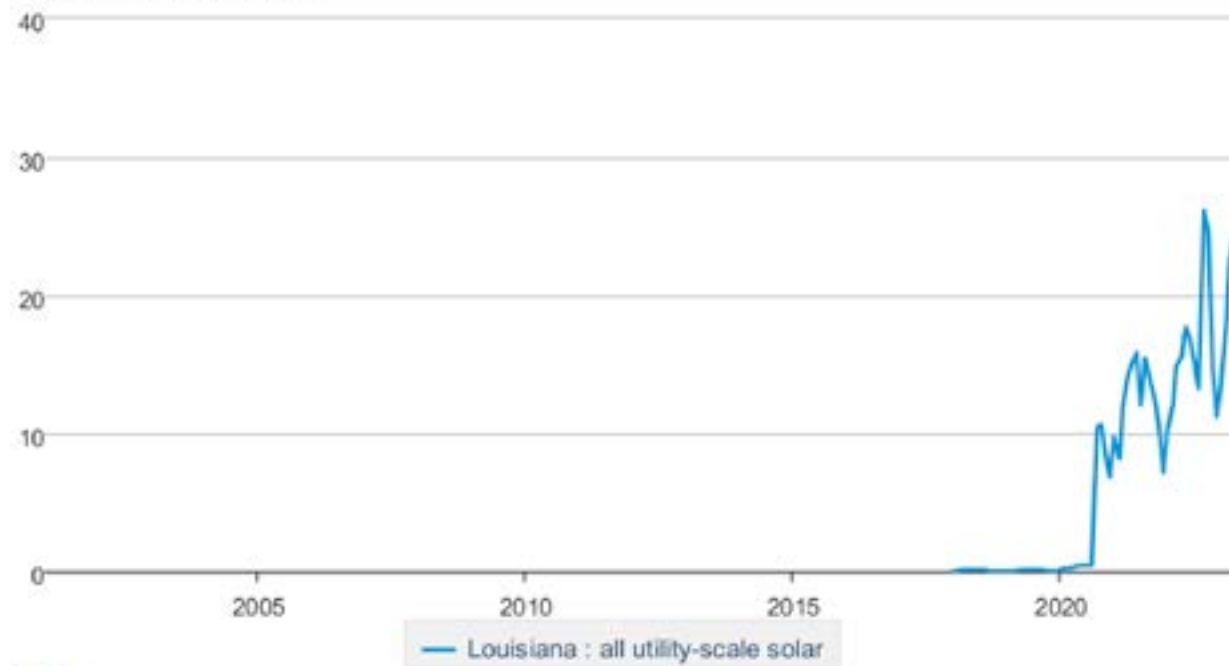
*est is the estimated peak total electricity generation that those solar farms will produce once operational

Although Louisiana currently only has 5 operating utility-scale solar farms, the state has one of the largest pipelines for future utility-scale solar development with 856.28 MW capacity for 30 planned projects, 22,882 MW capacity for 121 queued projects, and 10,276 MW capacity for 95 site control projects. Overall, if all planned, queued, and site control farms go into operating status, Louisiana will expand its capacity by 34,014 MW. In Louisiana, the average solar farm size is 150 acres, producing 15 MW of electricity under ideal conditions. So a solar farm in Louisiana needs an average of 10 acres per MW of capacity.

Louisiana Solar Energy ACTIVITY

Net generation for all sectors, monthly

thousand megawatthours



 Data source: U.S. Energy Information Administration

Historically, Louisiana, abundant in natural resources, has been known for their natural gas and petroleum-driven electricity generation and production. Coupled with pushbacks on renewable energy implementation from farmers, ranchers, and legislators, solar development was not prioritized as a result, hence the fewer number of operational utility-scale projects in the state. The opposition has been catalyzed by rivalries for pasture and agricultural land, apprehensions that solar projects might not maximize economic gains on crucial industrial sites, anxieties about post-obsolescence cleanup, and apprehensions about substantial, enduring transformations to Louisiana's natural landscapes.

Louisiana Solar Energy **ACTIVITY**

However, the recent emergence of state and federal policies have played a significant role in promoting solar development since 2019. The aforementioned spike of utility-scale solar projects added to the queue from 2019 onwards is attributable to implementation of the federal Investment Tax Credit (ITC) and the Inflation Reduction Act (IRA) in 2022. The commercial ITC amounts to 30% of the invested basis in eligible property that initiated construction before the end of 2019. The IRA outlined an ITC extension to 30% for solar system installation.

Additionally, in July of 2023, the Federal Energy Regulatory Commission introduced a new interconnection rule (Order No. 2023) aimed at streamlining the connection of power generation projects to the electric grid, which is expected to benefit primarily renewable energy projects currently facing significant interconnection delays. These reforms address the long-standing backlog issue, which has hindered the progress of renewable energy initiatives by reducing wait times and implementing cluster studies to evaluate multiple projects simultaneously. The rule also necessitates financial commitments from interconnection applicants, promotes technological advancements, and encourages the co-location of generation facilities.

Analyzing Utility-Scale Solar in Louisiana

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.

Louisiana is a particular state for solar development where the northwest of the state is regulated by Southwest Power Pool (SPP), and the remainder of the state is regulated by Midcontinent Independent System Operator (MISO).

Projects Queued for Development in Louisiana

ISO	Number of Solar Farms	Capacity (MWac)
MISO	468	105,325
SPP	28	7,050

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 Louisiana is 43 Months! As per the projected in-service dates for the current projects in queue, Louisiana will most likely add 6.4 GW of Utility Scale farms by the end of 2024, which is an exceptional increase in operational capacity.

Louisiana has seen a noteworthy increase in utility scale solar development. While the state is currently ranked 38th in terms of nation-wide solar development, that ranking is projected to

rise to 19th within the next 5 years. Louisiana has shown to favor the development of more utility scale solar projects to offset the volatile price fluctuations from their historically dependent natural gas reserves. However, as the state transitions to using more renewable energy sources, the development of more utility scale projects is more favored. Additionally, the promise of more utility scale projects offers local communities the opportunity for more job creation and additional tax exemptions and revenue that trickle from the construction of these facilities. Entergy Louisiana, the state's largest utility, made a request to state regulators earlier in March this year to increase their installed capacity by 3 GW. In fact, Entergy Corporation, the parent company of Entergy Louisiana, plans to add up to 17 GW of renewable energy sources by the end of 2031. With the trajectory of solar development rising in Louisiana, utility scale solar projects will become more imminent in the near future. The most popular areas in Louisiana for utility scale solar development include

cities such as Lake Charles, Baton Rouge, New Orleans, Iberville and St. James, which are all more conducive to solar energy generation due to the favorable weather conditions and availability of land.

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.

Projects Under Site Control in Louisiana

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 10 project leases with an estimated capacity of 298 MW. Land-Gate 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.

LandGate's Solar PowerVal tool 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 Louisiana

Louisiana is a state primarily regulated by Southwestern Electric Power Company (SWEPCO) and Entergy for small-scale community solar farms.

Louisiana has seen considerable growth in Community and Distributed generation. There are currently around 14 planned community solar farms that are less than 10 MW in Louisiana. The state is currently building out a pipeline for small scale solar project development and there has been much discourse on the implementation of community solar programs. These programs typically allow consumers to access solar energy without the need to install their own solar systems, typically benefiting from energy generated at an external solar array.

Community solar can lead to approximately a 10 percent reduction in electricity expenses for residential consumers. Supporters argue that it has the potential to provide affordable renewable energy to individuals with low to moderate incomes, extending the advantages of solar power to those who may not be able or willing to install solar panels on their own property. To align with the Department of Energy's definition of community solar, state legislators would need to authorize a third-party market, which would require project developers and utilities to adhere to regulations for enrolling customers and establishing community solar installations.

Community solar projects in Louisiana continue to grow as the state becomes more inclusive to renewable energy projects. Entergy Louisiana, the largest utility provider in Louisiana, established their community solar rules which stipulated that: each facility must not generate more than 5MW, the program's capacity limit must be less than or equal to 5% of the

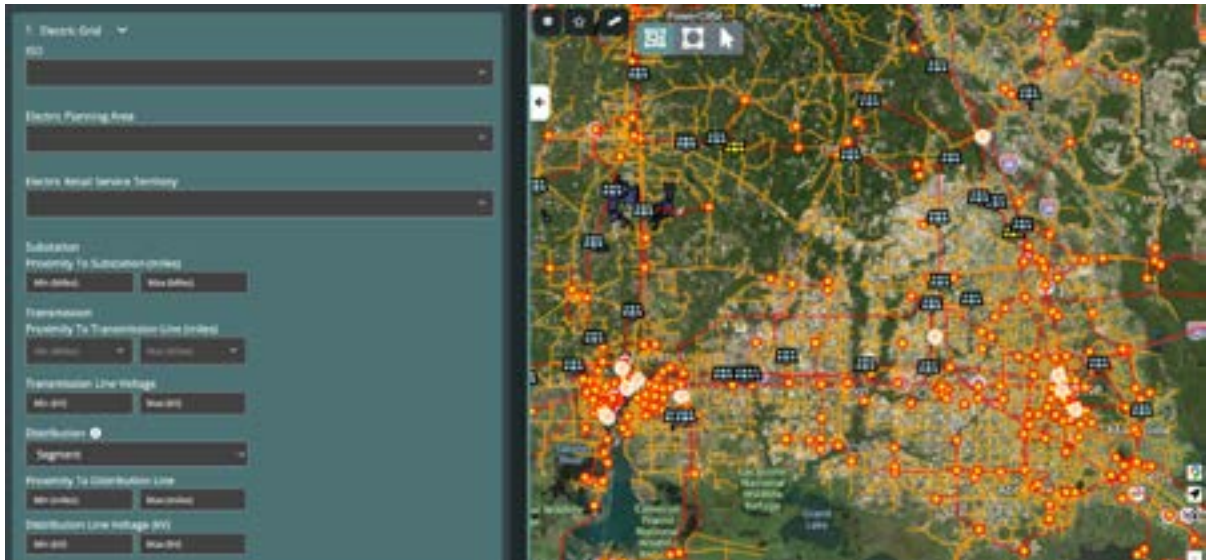
utility's annual peak for 3 years (after which this becomes reconsidered) and finally, credits are applied to a subscriber's monthly electricity bill as a sum of avoided electricity costs. While community solar isn't the most prominent form of solar development in Louisiana, it still is growing in popularity as an alternative to conventional oil and gas.

In Louisiana, community solar was gaining traction as a way to provide solar benefits to residents who couldn't install solar panels on their properties. A notable program is the "Smart Neighborhood" project developed by the Louisiana State University Center for Energy Studies in partnership with Entergy. It involves energy-efficient homes equipped with solar panels and battery storage in the Baton Rouge area. The feasibility of community solar projects depends on local regulations, available land, and community interest. Community solar projects can be found across the state, but they may be more prevalent in areas with strong community support and partnerships with local utilities and organizations.

Legislation for Community Solar

The City of New Orleans, in collaboration with Madison Energy Investments and Solar Alternatives, launched a citywide community solar program in early 2022. This initiative will involve the creation of solar gardens that allow residents to purchase shares and receive electricity bill credits for their portion of the power generated. The program's development, rules, and deployment procedures were carefully crafted by the city council, which will also play a crucial role in project development by approving solar garden locations, particularly in underserved neighborhoods. Additionally, the city is considering city-owned sites like rooftops and vacant land for potential project development.

How does a Community or Distributed Generation project connect to the electric grid?



These projects almost always connect to a three-phase distribution line. A distribution line is conceptually the same as a transmission line but moves electricity at a much lower voltage. A distribution line must be within one mile of your property (or preferably much less) to make interconnection cost-effective. Through LandGate's accessible distribution line data, developers and landowners can evaluate land parcels based on segments & feeders, proximity to existing distribution lines and distribution hosting capacity.

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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 (node) 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.

Louisiana saw the average LMP price increase by 56.2% in the past 3 years with an average price of \$29.44 \$/MWh in 2023.

This price is expected to increase by 17.7% in 2024 and attract several renewable energy developers for utility and community scale solar projects. Similarly, consumer electricity purchase cost has also increased drastically for the past few years in Louisiana. The current commercial electricity rate is 9.71 ¢/kWh which is a 8.73% increase

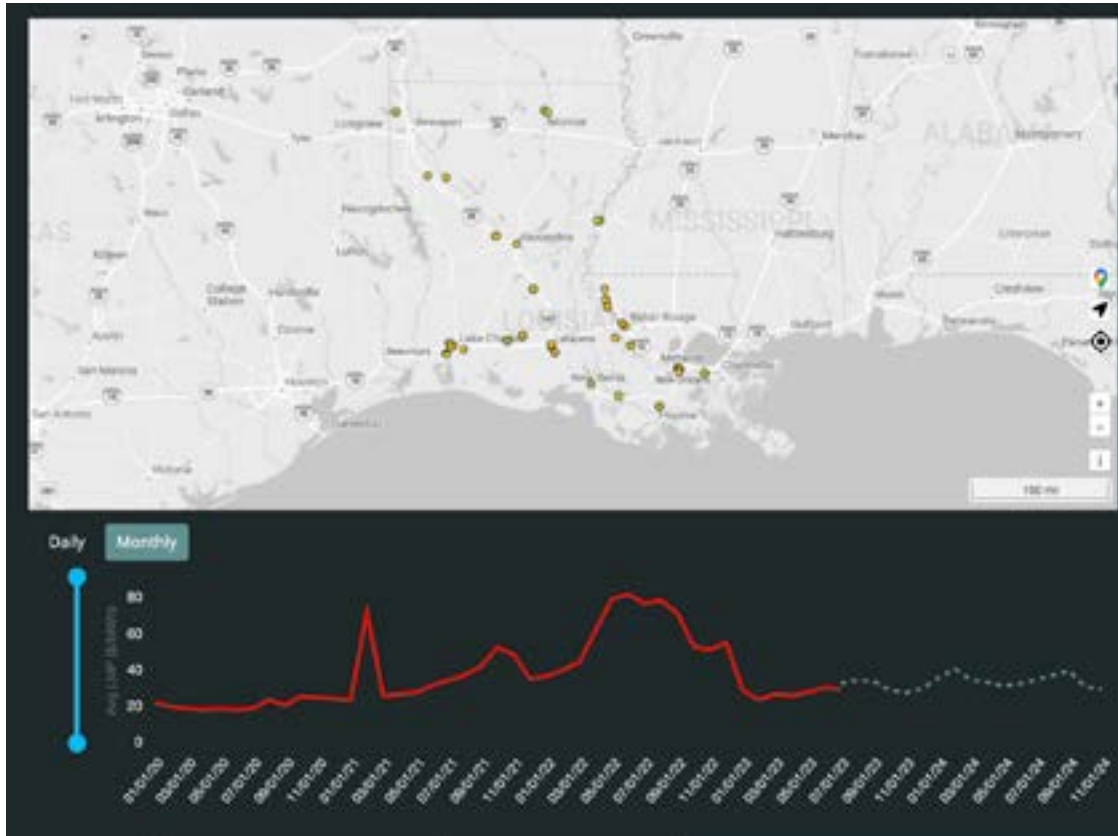
compared to the commercial electricity rate of 8.93 ¢/kWh in 2020.

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.

By offering participants in community solar more potential power bill savings, higher LMP pricing can improve the value proposition. Greater adoption of community solar may result from community solar projects situated in regions with higher LMP prices being more economically feasible and appealing to potential members.

Louisiana

LMP Scorecard



Merchant Energy Pricing: Market: MISO & SPP Hub: Louisiana Hub	
Number of price nodes active:	76
Average LMP price as of 07/01/23:	\$29.44
Average retail price as of 07/01/23 (how much a community solar farm or behind the meter electricity generation sales electricity for + consumer purchase cost)	9.71¢/kWh Current commercial electricity rate 8.93¢/kWh Rate in January 2020, +8.73% incr.
Percentage change in average LMP in the past 3 years	+56.20%
Forecasted percentage change in average LMP Price for 2024:	+17.70%

Average LMP Prices: Historical & Forecasts

Year	Avg LMP Price (\$/MWh)
2018	\$31.19
2019	\$25.05
2020	\$22.70
2021	\$30.05
2022	\$32.76
2023	\$32.29
2024 (est.)	\$37.83
2025 (est.)	\$42.91
2026 (est.)	\$49.34

Based on the LMP and ISOs data in Louisiana, the 2024 average LMP is estimated to be \$37.83/MWh, increasing by 17.7% compared to 2023.

Louisiana

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 Louisiana is \$39.14 \$/MWh. This price has decreased by 5.94% in 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.

Louisiana

PPA Scorecard



Average PPA price 2023:	\$39.14
Average PPA price change in the last 3 years	-5.94%
Largest PPA buyers:	BP & DESRI

Average PPA Prices:

Year	Price (\$/MWh)
2020	\$41.61
2021	\$41.63
2022	\$41.32
2023	\$39.14
2024	\$37.13

Federal & Louisiana State Tax Incentives for Solar Developers

There are several federal and state incentives available for solar development in Louisiana, 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.

LA Solar Development Incentive	Type	About
Federal Solar Tax Credit (ITC)	Federal	Developers can claim 30% of the installation cost as a credit on their federal income taxes.
Net Metering	State	Net metering enables homeowners who generate surplus energy to apply it as a credit toward their upcoming electricity bill. In Louisiana, the net metering program is robust, granting individuals the full retail electricity rates for the excess energy they
Home Energy Loan Program (HELP)	State	The Home Energy Loan Program (HELP) offers homeowners low-interest, five-year loans for energy efficiency projects, with the Louisiana Department of Natural Resources (LDNR) providing up to \$6,000 at a fixed 2% interest rate.
Rural Energy for America Program (REAP)	State	As of March 2021, the Rural Energy for America Program (REAP) provides guaranteed loan financing and grants for renewable energy and energy efficiency projects to agricultural producers and rural small businesses.

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

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.

Net Metering

Net metering is a billing arrangement that allows consumers who generate their own electricity from renewable sources to receive credit for any excess electricity they produce and feed back into the grid. In Louisiana, customers who have installed any renewable energy systems, such as solar panels or wind turbines, are credited at the retail rate, the same rate the customer would pay for the electricity if they were to consume from the grid.

Home Energy Loan Program (HELP)

The Home Energy Loan Program (HELP) offers low-interest home improvement loans to homeowners looking to enhance the energy efficiency of their existing homes. Under this program, homeowners can secure a five-year loan for energy efficiency improvements. The loans are structured like standard unsecured residential loans. Participating homeowners can choose from a predefined list of approved improvement measures. The Louisiana Department of Natural Resources (LDNR) provides half of the loan amount, up to a maximum of \$6,000, at a fixed 2% interest rate, irrespective of the market rate.

Rural Energy for America Program (REAP)

The Rural Energy for America Program (REAP), as of March 2021, offers guaranteed loan financing and grant funding to agricultural producers and rural small businesses. These funds are intended for the implementation of renewable energy systems or



energy efficiency improvements. Eligible applicants include agricultural producers whose income is primarily derived from agricultural operations and small businesses located in rural areas.



With such a wealth of new data on the state of Solar Development in Louisiana, we imagine you might have questions about how to apply these trends, data, and tools to your own solar development efforts in Texas. 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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