

Guidance for Collecting & Understanding Relevant Policy and Market Information for Renewable Project Development

This document is designed to help organizations collect relevant policy and market information in relation to the development of renewable energy projects. It reviews policies, incentives, and financing options that might affect an organization's ability to own, or contract with, on- or off-site sources of renewable energy generation. These include:

- [Third-Party Ownership Authorization Policies](#)
- [Market Structure](#)
- [Renewable Portfolio Standards \(RPS\) and Solar Carve-out Policies](#)
- [Net Metering Policies](#)
- [Alternative Net Metering Policies](#)
- [Interconnection Standards](#)
- [Local Permitting and Inspection](#)
- [Community Solar Policies](#)
- [Financial Incentives](#)
- [Community Choice Aggregation \(CCA\)](#)

Following each sub-section, space is provided for notetaking to help readers track policy information specific to their own organization's situation. A summary table at the end of the document details the steps involved in the renewable energy project development process and identifies the specific policies that might impact each step.

Determine the Status of Policies that Impact Renewable Energy Project Development

I. Third-Party Ownership Authorization Policies

Description: Under the third-party ownership model, energy customers can access electricity produced from a renewable energy project that is built, owned and operated by a third-party project developer and deployed at the customer's site. Because the customer does not own the project, they avoid paying the up-front capital costs to build the project, paying for the ongoing operation and maintenance of the project, and the responsibility of project removal at the end of the contract term. Under third-party ownership models, the customer may also have the option to purchase the system at the end of the contract term.

Power purchase agreements (PPAs) and lease agreements are the predominant forms of third-party financing.

PPAs are contract agreements in which a developer installs a renewable energy system on the customer's premises and the customer agrees to purchase the power. The customer may also purchase the energy attributes (e.g., renewable energy certificates) generated by the system at an agreed-upon price per kilowatt-hour. Because the amount the customer pays each month is dependent on the performance and output of the system, the project owner is incentivized to keep the system operating efficiently. PPAs can be particularly appealing to tax-exempt entities, such as municipalities and higher education institutions, that cannot directly take advantage of federal and state tax incentives. PPAs allow third-party owners to utilize these tax incentives and pass the savings along to the customer through the electricity price. If the customer purchases and is conveyed ownership of the energy attributes (e.g., renewable energy certificates) generated by the project, they can substantiate claims of renewable electricity use and a reduction in their emissions footprint. Some states limit or prohibit third-PPAs. These limitations and restrictions generally pertain to how a state views third-party ownership of distributed energy systems that sell electricity to customers in direct competition with the incumbent electric service utility.¹

¹ [Solar PV Project Financing: Regulatory and Legislative Challenges for Third-Party PPA System Owners](#)

Lease agreements are arrangements whereby a developer installs renewable energy generating equipment at the customer's site and leases the equipment to the customer for an agreed-upon lease payment, usually paid monthly. The amount paid each month by the customer is usually fixed and made regardless of the amount of electricity that is generated by the system. Tax-exempt entities, such as municipalities, may enter into leases for renewable energy projects with third-party owners. However, tax laws do not allow third-party owners to utilize tax incentives if they are leasing to tax-exempt entities. This restriction usually makes third-party leases more expensive for tax-exempt entities than alternative financing approaches, such as PPAs.

Municipalities and other tax-exempt organizations, such as healthcare and educational institutions, may want to consider a tax-exempt municipal lease as a financing structure for a renewable energy project (see sidebar for more details). In some cases, a lease can also convey the energy attributes (e.g., renewable energy certificates) produced by the system to the lessee, which is required for the lessee to substantiate claims of renewable electricity use and a reduction in their emissions footprint. Some states that limit or prohibit third-party PPAs may explicitly allow for leasing arrangements. Leases are less likely to be restricted by state laws relating to monopoly utility laws as the third-party owner is not selling electricity to the customer but renting to them an electric generating asset.

A tax-exempt municipal lease (also called a tax-exempt lease purchase) is a financing structure that allows qualifying public entities to pay for equipment, including renewable energy systems, using its annual revenues. Such a financing structure can be an effective alternative to traditional debt financing (e.g., bonds, loans.). Only municipalities or qualified political subdivisions can qualify for this type of financing agreement. Because the lessor does not pay federal income tax on the interest earned, the tax-exempt lease carries a much lower interest rate than other types of leases and installment loans, which in turn significantly lowers the cost of financing to the borrower.

Policy Impacts to a Renewable Energy Project:

- In states that allow third-party PPAs, an organization can engage directly with a solar or other renewable project on its property that is owned, operated, and maintained by a third-party. Organizations are often able to lower their cost for electricity with a PPA and lock in a known future kilowatt-hour price over the term of the contract. The negotiated price can be flat or escalate over time. Escalating rates usually provide the buyer with immediate cost savings but may result in a higher levelized cost of electricity over the contract term compared to flat rate arrangements. The third-party owner acquires financial value by receiving any tax incentives that might be available and from the revenue generated from the sale of electricity and the associated renewable energy certificates² (RECs) to the host organization. An organization can also engage with a project through a third-party lease or by self-financing the project.
- In states that do not allow third-party PPAs, organizations may be able to engage in a third-party lease. These types of arrangements are generally less restricted by state laws than are PPAs. Organizations in these states can also self-finance their own solar or renewable energy project. In these arrangements, an organization pays for the up-front capital cost to build the project. Under both lease and self-finance arrangements, tax-exempt organizations, such as municipalities, are not able to take advantage of any available tax incentives. Additionally, with a self-financed system, the organization is responsible for maintaining the project.
- In states where third-party ownership laws are unclear or unknown, it is best to consult with your legal counsel and/or your state's public utility commission (PUC) to obtain clearer guidance regarding the potential for a third-party owned project.
- Organizations served by a municipal utility or a rural electric cooperative, should confirm with them that their rules and regulations allow for third-party ownership. Many state policies that cover investor-owned utilities (IOUs) do not apply to municipal utilities and rural cooperatives.

² The third-party owner may convey the RECs to the host customer through the third-party arrangement such that the customer can substantiate its renewable energy use claim. Absent owning the energy attributes or RECs associated with the generation, the customer cannot claim to be using renewable electricity or green power. For more on claims, see: [Guide to Making Claims About Your Solar Power Use](#)

- Consumers in states with established solar carve-out REC markets have the opportunity to engage in [REC arbitrage](#) (also referred to as a REC swap) when installing self-financed solar or other renewable projects or when engaging in a PPA or lease agreement. Solar or other renewable project owners in states where RECs are higher-priced due to high RPS demand have an incentive to sell their project RECs and buy lower-priced replacement RECs to substantiate their renewable electricity claims. REC arbitrage allows consumers to decrease the cost of their renewable electricity use while simultaneously substantiating their renewable electricity use and carbon footprint reduction claims. Note: any claim must be specific to the replacement REC (e.g., resource type, location of generation) and not to the solar project's RECs.

Determine if there is an RPS and SREC Market in Your Region by finding your state on [DSIRE's map of RPSs with solar or distributed generation provisions](#) and [DSIRE's database of state SREC programs](#). Review SREC prices on EnergySage's [Understanding SREC Prices webpage](#).

Solar Carve-out REC Market in My State (Mark one):

Yes No

Solar Carve-Out REC Prices in My State:

\$/MWh:

If Yes, Would You Consider REC Arbitrage (e.g., replacement RECs)? (Mark one):

Yes No

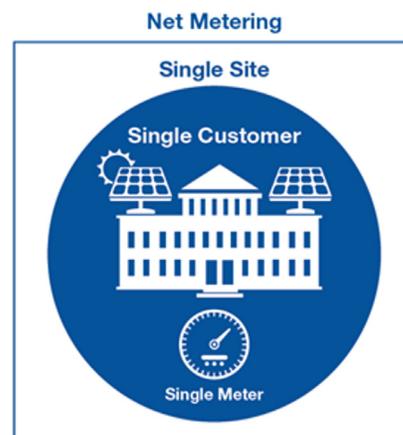
Note any considerations related to your state's RPS policies and solar carve-out REC market:

Additional Resources:

- DSIRE – [Database of State Renewable Portfolio Standards](#)
- DSIRE – [Renewable Portfolio Standards](#) (Map)
- NREL – [State-by-State Policy Guide for Midsized Solar Customers](#) (Select your state)
- EnergySage – [How Do SRECs Work? State-by-State Solar Renewable Energy Credits Explained](#)

IV. Net Metering Policies

Description: Net metering policies allow owners of distributed renewable power systems located behind their meters to receive a billing credit allocated at a per kilowatt-hour (kWh) basis on their electric bill for any electricity generation that is exported to the utility grid. Net metering customers use the electricity produced directly from their on-site project; however, if the electricity generation exceeds customer demand at the time of generation, the excess electricity is exported (fed onto) to the utility's electric grid. If the customer uses electricity from the electric grid to meet their demand, the customer can use any available billing credit created from their excess renewable electricity generation to cover the cost of the power consumed from the electric grid. Net metering customers with on-site renewable energy projects pay for the "net electricity consumed" from the utility grid. Depending on a state's net metering policies, customers are compensated for excess renewable



electricity generation by their utility at either the full retail rate or at a reduced rate. In some instances, compensation levels may be zero or enhanced through time-of-use utility rate schedules. If renewable electricity generation exceeds total consumer demand during a billing cycle (e.g. monthly), net metered customers can generally carry the balance of their credit forward into future billing cycles. These balances might expire at some fixed point in time, or can be carried forward indefinitely, depending on the individual state policies in place. Currently, 39 states, Washington, D.C., and three U.S. territories allow for net metering, and utilities in two additional states—Idaho and Texas—have voluntarily adopted net metering programs.³

Policy Impacts to a Potential Solar or Other Renewable Energy Project:

- Net metering policies can vary significantly by state.
 - If net metering is available in your state, it is important to determine at what rate you receive compensation for your net excess generation; if and for how long a net metering credit can be retained; if there are capacity limits to PV system size; and who is conveyed ownership of the associated RECs from the net-metered system.

Determine if there is an RPS and SREC Market in Your Region by finding your state on [DSIRE's map of net metering policies](#) and [customer credits for monthly net excess generation](#) and [DSIRE's database of state net metering policies](#).

Net Metering Policy in My State (Mark one):

Yes No

Limits on the Eligibility for Net Metering by Customer Class/Type (Mark one):

Yes No

Net Metering Capacity Limit (kW):

Solar PV Capacity Limit

Net Metering Customer Credits / Compensation (Mark one):

Full Retail Rate (credits do not expire)

Full Retail Rate (credits expire or are reduced)

Note timeframe when credits expire or are reduced:

Less than Retail Rate (e.g., avoided cost rate)

No Compensation

Net Metering REC Ownership (Mark one):

System Owner Retains Ownership of RECs

Utility Conveyed Ownership of RECs

³ Database of State Incentives for Renewable Energy (DSIRE). https://s3.amazonaws.com/ncsolarcen-prod/wp-content/uploads/2019/10/DSIRE_Net_Metering_Oct2019.pdf

Note any considerations related to your state's net metering policies:

Additional Resources:

- NREL – [State-by-State Policy Guide for Midsized Solar Customers](#) (Select Your State)
- NREL – [Net Metering](#)
- EnergySage – [Net Metering in Your State](#) (List)
- SEIA – [Net Metering](#)
- National Conference of State Legislatures – [State Net Metering Policies](#)

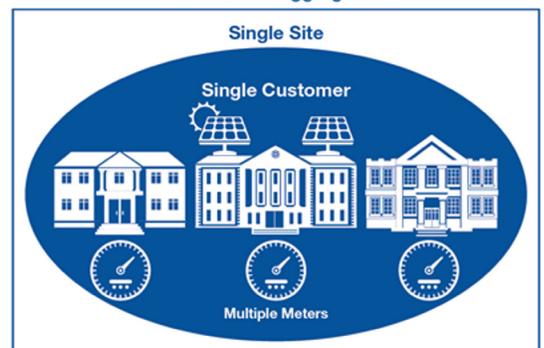
V. Alternative Net Metering Policies

Description: With the proliferation of distributed renewable energy projects and advances in grid technologies, many states have expanded net metering by creating policy variations that are less restrictive than traditional net metering policies and do not require that a single system be physically connected to the electric grid behind a single customer's electric meter. These policy variations expand opportunities for consumers to benefit from distributed renewable energy projects, including allowing consumers who rent or reside in multifamily or multi-tenant buildings to share in a project's generation value. With alternative net metering, the customer is conveyed net metering credits associated with its share of the generation from the renewable energy system and uses the credits to offset the cost of their purchased electricity.

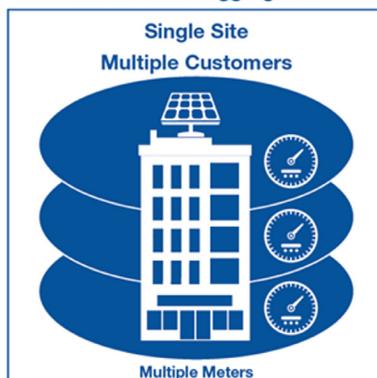
The policy variations and resulting net metering arrangements are state specific. Described below are general categories of policies, adapted from a [report on aggregate net metering by the North Carolina Solar Center](#). If your state has implemented an alternative net metering policy, it likely falls into one of these broad categories, which vary based on the number of electric customers who can be involved and the number of renewable energy projects that can be allowed.

Basic Meter Aggregation enables a single customer to offset multiple billing meters located on the same site/property with credits from a single renewable energy system. Basic meter aggregation can be especially applicable to municipalities, universities, or customers with campuses that have multiple separately metered buildings located in close proximity to one another. Certain states require that the owner of the system also be the owner of all the meters, and that the property be owned or leased by that same customer.

Basic Meter Aggregation



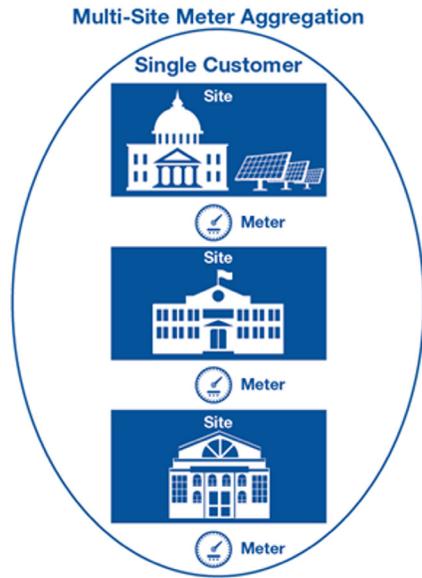
Tenant Meter Aggregation



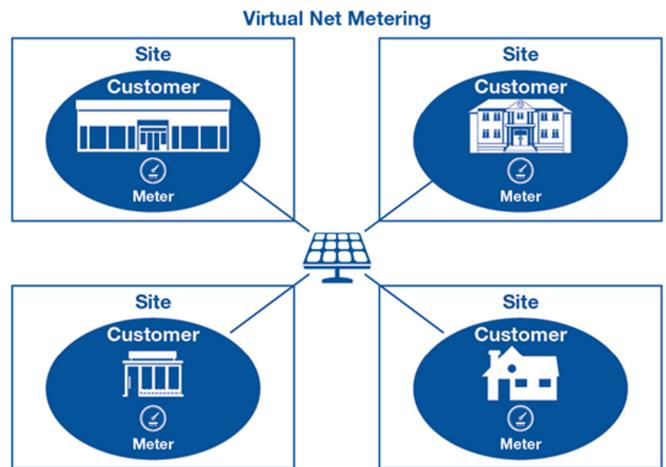
Tenant Meter Aggregation

enables multiple customers to aggregate meters, but only if the customers' meters are located on the same or contiguous property. These types of policies may be especially applicable to multifamily residential buildings and other multi-tenant buildings (e.g., a shopping mall or office building) where individual meters are owned by different customers instead of a landlord. If state laws allow for different customer sectors to aggregate meters, a local government and non-municipal organization that shares an office building could use tenant meter aggregation to engage jointly with a renewable energy system.

Multi-site Meter Aggregation enables a single customer with multiple sites to aggregate meters located in geographically disconnected areas. An example of a situation in which multi-site aggregation would be especially applicable is a municipality that owns a site that is an optimal location for a renewable energy system (e.g., landfill) but has a minimal electric load, and owns another site that is less optimal for a renewable energy system, either due to space limitations (e.g., a downtown office building) or performance impediments (e.g. shading from tree cover), but has a large electric load. The municipality could use the electricity generated by an optimally sited renewable energy system to offset load at the site with the large electric load. These types of net metering arrangements allow for the development of larger renewable energy projects that can take advantage of economies of scale, avoid site space limitations, and be sited at locales with the most productive solar resources, making for more efficient systems and higher financial returns. States with multi-site aggregation often have some type of proximity requirement for the system relative to the metered electric loads, such as being located within a certain number of miles.



Virtual Net Metering is the most flexible of all net metering policies. It enables multiple customers at multiple sites to participate in meter aggregation even if they are located on non-contiguous properties. Virtual net metering is usually the enabling policy for [shared renewables programs](#) (also called community solar and community solar gardens). Typically, these programs are subscriber-based, with a controlling organization that owns the virtually net-metered system. State policies governing virtual net metering arrangements vary widely by state, including rules for the number of customer subscribers, minimum or maximum share of a system permitted for each subscriber, and customer meters be located within a certain geographic proximity, utility service territory, or load zone of the system.



These aforementioned alternative net metering policies differ by state, e.g., number of customers allowed; number of renewable energy systems allowed; customer type; technology type; capacity limits; and the allowable distance between the renewable energy project and the customer's meters. As of 2016, at least 17 states have authorized some form of alternative net metering, including Arkansas, California, Colorado, Connecticut, Delaware, Maine, Maryland, Minnesota, Nevada, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Utah, Washington, and West Virginia.⁴

Policy Impacts to a Potential Solar or Other Renewable Energy Project:

- Alternative net metering policies vary significantly by state.
 - If some form of alternative net metering is available in your state, it is important to determine if the rules of the net metering arrangement permit you to participate, at what rate you receive compensation for your net excess generation, if and how long net metering credit can be retained, if there are capacity limits on the renewable energy system size, and how REC ownership is defined.
- Alternative net metering policies allow for shared renewable energy projects, such as community solar arrangements. RECs, however, are not always conveyed to community solar project sponsors/consumers. Thus, these customers cannot claim to be using “renewable” electricity or reducing their carbon footprint exclusively from the shared renewable project itself. The renewable energy attributes and environmental benefits are instead bought by or shared across other electricity users.

⁴ <https://www.ncsl.org/research/energy/net-metering-policy-overview-and-state-legislative-updates.aspx>

Determine if there is an Alternative Net Metering Policy in Your Region by finding your state in [DSIRE's database of state net metering policies](#).

Alternative Net Metering Policy in My State (Mark one):

Yes No

Name of Your State's Alternative Net Metering Policy:

Type(s) of Alternative Net Metering Policy (Mark all that apply):

Solar PV Capacity Limit

Basic Meter Aggregation

Tenant Meter Aggregation

Multi-site Meter Aggregation

Virtual Net Metering

Alternative Net Metering Capacity Limit:

Solar PV Capacity Limit (kW or MW)

Alternative Net Metering Customer Credits / Compensation (Mark one):

Full Retail Rate (credits do not expire)

Full Retail Rate (credits expire or are reduced)

Note timeframe when credits expire or are reduced:

Less than Retail Rate (e.g., avoided cost rate)

No Compensation

Net Metering REC Ownership (Mark one):

System Owner Retains Ownership of RECs

Utility Conveyed Ownership of RECs

Onsite Load Requirement (Mark one):

Yes No

Meter Proximity Requirements:

Permitted distance from renewable energy project

Note any considerations related to your state's alternative net metering policies:

Additional Resources:

- NREL – [State-by-State Policy Guide for Mid-sized Solar Customers](#) (Select Your State)
- NREL – [Net Metering](#)
- EnergySage – [Net Metering in Your State](#) (List)
- SEIA – [Net Metering](#)
- National Conference of State Legislatures – [State Net Metering Policies](#)
- North Carolina Solar Center – [Aggregate Net Metering: Opportunities for Local Governments](#)
- Institute for Local Resilience – [Aggregate Net Metering Policy State Map](#)
- DSIRE – [State Community Solar Policy Trends](#) (Presentation)

VI. Interconnection Standards

Description: [Interconnection standards](#) define how distributed energy systems, including distributed renewable energy systems like solar systems, can safely and legally connect to the electricity grid. They specify requirements and procedures for both utilities and customers. Generally, interconnection standards outline a multi-step process that can result in a wide range of costs depending on the specific jurisdiction, size of system, and whether the system is behind or in front of the customer's utility meter. For example, with distributed behind-the-meter systems, the costs are typically minimal. Larger projects that are grid connected at the distribution or transmission level often require the project to pay significant fees for grid interconnection studies. These studies are needed ensure that the proposed project will not create unintended consequences in the operation and flow of electricity on the grid.

Policy Impacts to a Potential Solar or Other Renewable Energy Project:

- State PUCs establish interconnection standards that customers and utilities must follow. Standards vary by state. Interconnection standards may pose challenges and delays to renewable project development if the standards are highly restrictive or if conformance with the standard is cost prohibitive.
 - For your state, it is important to identify to determine: if there are rules that apply to system eligibility and size limitations; if liability insurance is required; if net metering is required; and if an external disconnect switch is required (a hardware feature that allows utility employees to manually disconnect a customer-owned system from the electricity grid).

Identify the Interconnection Standards and Permitting Requirements that will Impact Solar or Other Renewable Energy Project Development in Your Region by finding your state on [DSIRE's database of interconnection policies](#) and selecting your state from [NREL's State Policy Inventory](#).

Interconnection Standards/Guidelines in My State:

Solar PV Capacity Limit

Insurance Requirements

External Disconnect Switch Required? Yes

No

Net Metering Required? Yes No

Note any considerations related to your state's interconnection standards or permitting requirements:

Additional Resources:

- NREL – [Interconnection Standards](#)
- NREL – [An Overview of Distributed Energy Resource \(DER\) Interconnection: Current Practices and Emerging Solutions](#)
- IREC – [2019 Model Interconnection Procedures](#)

VII. Local Permitting and Inspection

Description: Solar and other renewable energy installations are subject to a number of permitting and inspection requirements to ensure that systems are installed and operated safely. These requirements can be issued by jurisdictional authorities at the state, county, or municipal levels; and vary across the country. Depending on the jurisdiction and the type and size of the solar project, the permitting process can require significant time and cost. The basis for permit and inspection rules is a suite of building, fire, and electrical codes that your state, county, or city adopts. Solar and other renewable energy installations must comply with the codes adopted by your jurisdiction in order to be installed and operated.

- **Building codes** set minimum standards for structures and buildings related to installation, materials, wind resistance, etc. Most states and localities in the United States base their building code on the International Energy Conservation Code (IECC) model building and residential codes, adapting them as needed to reflect local conditions. The current version of the IECC codes (2018) require solar installations to be installed according to manufacturer's specifications, the National Electrical Code (NEC), and the Underwriters Laboratories product safety standards. Other requirements include that the roof be structurally capable of supporting a PV installation; that PV modules be non-combustible; and that rooftop systems have the same fire classification as the roof assembly.
- **Fire codes** ensure the safety and well-being of fire fighters and first responders should there be an emergency. Potential solar installation hazards that fire codes address include tripping, structural collapse, fire spread, inhalation exposure to toxic materials, and electrical shock. Some local codes will include specific roof edge setbacks and solar egress and access requirements. Specific codes typically adopted by states and localities are the International Fire Code (IFC) or the NFPA 1 Fire Code.
- **Electrical codes** ensure that solar installations are safely designed, installed, operated, and inspected. Most states require solar installations to meet the requirements contained in the NEC. These include that solar installations be installed by "qualified" individuals, be able to rapidly shutdown in the event of an emergency, and that systems have proper labeling and signage, among others.

Policy Impacts to a Potential Solar or Other Renewable Energy Project:

- Permitting and inspection rules and procedures vary across states, counties, and municipalities.
 - At the outset of a potential solar project, it is important to understand the permitting and inspection requirements in your jurisdiction. The permitting and inspection process can be lengthy and costly, so fully understanding the requirements and processes to be followed will help save both time and money.

- If you are a local permitting agency, you can facilitate solar development by streamlining the process for projects to be permitted and inspected. For example:
 - The Interstate Renewable Energy Council (IREC) recommends a [set of best practices for an efficient solar permitting process](#).
 - NREL has launched a collaborative effort with code officials, permitting authorities, and the solar industry to develop an instant [online solar permitting platform for code compliant residential systems](#).

Identify the permitting and inspection requirements and processes in your locality by inquiring with the relevant authority for your jurisdiction as well as your chosen renewable energy project developer about their experience installing a project in your area. You can also utilize NREL's Solar Automated Permit Processing platform ([SolarAPP](#)), which aims to modernize and standardize local permitting.

Note any considerations related to your state's interconnection standards or permitting requirements:

Additional Resources:

- DOE – [Solar Powering Your Community: A Guide for Local Governments](#)
- NREL – [SolarAPP \(Solar Automated Permit Processing\)](#)
- SolSmart – [Solar PV Construction: Codes, Permitting, and Inspection](#)
- CESA – [Standards and Requirements for Solar Equipment, Installation, and Licensing and Certification: A Guide for States and Municipalities](#)
- EnergySage – [Solar Permitting & Inspections: An Overview](#)
- IREC – [Solar Permitting Best Practices](#)
- SEIA – [Local Solar Permitting](#)

VIII. Community Solar Policies

Description: The community solar procurement model, a popular form of [shared renewables](#), enables multiple customers to buy, lease, or subscribe (sometimes referred to as a sponsorship) to a portion of a solar power system that is usually located away from the consumers' facilities or operations. Community solar, gives community members the opportunity to share the benefits of solar power even if they are unable to or prefer not to install solar panels on their property. Community solar project participants/subscribers benefit from the electricity produced by the system, which generally costs less than the price they would typically pay to their utility for their standard electricity service. Participants in community solar can be credited through net metering or alternative billing arrangements (e.g., the value of solar tariffs; group billing; or joint ownership). Some form of virtual net metering must exist to enable community solar so that multiple customers can offset their electricity loads from the solar PV system located at an off-site location. (For more information on virtual net metering, see section V.) In many states, the enabling shared renewables policy precludes the buyer/subscriber/sponsor to receive the RECs from the system; therefore, a consumer interested in shared renewables should weigh whether this approach helps meet their renewable electricity use and emissions reduction objectives. Without owning the RECs from the system, a consumer can neither claim to be using renewable electricity or claim an emissions reduction benefit.

Policy Impacts to a Potential Solar Project:

- If your state allows community solar, customers can engage in a subscriber arrangement with an off-site solar project and will receive a monthly bill credit for electricity generated by their share of the solar PV system, as if the system were located on their own property.

- Community solar is especially appealing to electricity customers whose on-site resource potential is limited, who are tenants and don't own their own building, or who are otherwise unable or unwilling to install a solar PV system on their building.
- Depending on the structure of the community solar program, tax credits, such as the federal investment tax credit (ITC) for solar PV systems, may apply differently to community solar subscribers or sponsors. The ability of a community solar participant to claim the ITC is dependent on whether the participant owns the panels or output (in kWh) and if a participant claims an individual or commercial tax credit.
- Depending on their design, some community solar projects may have to comply with U.S. Security and Exchange Commission (SEC) regulations related to arrangements that are classified as "swaps".

Determine the Status of Community Solar Policy in Your Region by selecting your state on [Vote Solar's U.S. Shared Energy Map](#).

Community Solar Policies in My State (Mark one):

Yes No

Community Solar Program Format (Mark one):

Ownership-based Projects Subscription-based Projects

REC Ownership is Conveyed to Customer (Mark one):

Yes No

Cost to Participate in Local Community Solar Program/Project:

Cents per kWh or Dollars per kW:

Note any important information related to community solar policies in your state, such as cancellation terms, minimum performance guarantees, and price escalation rates.

Additional Resources:

- NREL – [State-by-State Policy Guide for Midsized Solar Customers](#) (Select Your State)
- NREL – [Community Solar](#)
- NREL – [Value-of-Solar-Tariffs](#)
- EnergySage – [Community Solar: What is it?](#)

IX. *Financial Incentives*

Description: Financial incentives may be available at the state and federal level or from the utility to help lower the cost of developing a renewable energy project. Incentives are typically either performance based (e.g. compensated on a price per kWh) or capacity based (e.g. rebates), and they vary significantly by state and utility. Below are some incentives that may be available to organizations considering renewable energy projects.

Performance-based Incentives

Performance-based incentives, also known as production incentives, provide financial compensation based on the actual energy production of a renewable energy system. Typically, the incentives are paid based on an energy (\$/kWh) basis over a period of time. Types of performance-based incentives include:

- *State-established* REC markets are mostly focused on solar projects. States with solar carve-outs establish solar REC markets that allow solar system owners to sell the RECs generated by their solar systems to utility companies. Prices for RECs sold into state-established REC markets are usually at or near the cost of the fines levied on utilities for non-compliance (called “alternative compliance payments, or ACPs) and will rise and fall as both supply, demand and the fine levels change over time. System owners who sell their solar projects’ RECs also transfer to the buyer all rights related to making claims about using solar power and the REC’s zero emissions rate.
- *Feed-in tariffs* are incentives that pay owners of distributed renewable energy systems a certain amount per unit of electricity sent to the grid. They are often fixed-price incentives that are locked in over a contract period of 10 to 20 years, providing system owners a long-term, stable incentive. Feed-in tariffs are relatively rare as a policy mechanism in the United States. To see which states currently offer feed-in tariffs, visit [DSIRE](#).
- *Value-of-solar tariffs* is a rate design policy that gives owners of solar installations credit for the electricity generated by a PV system at a specific price per kilowatt-hour. The payment rate is calculated based on an assessment of the full cost and benefit of solar resources on the utility grid. To see which states currently offer value-of-solar tariffs, visit [DSIRE](#).
- *Performance premiums* are payments above the net metering rate for the electricity that a renewable energy system produces. System owners who receive a performance premium may be required as part of the agreement to transfer ownership of the REC to the utility. In doing so, the customer receives a lower cost for the power, but may not claim the power as renewable.

Capacity-based Incentives

Many utilities offer up-front rebates based on installed capacity (\$/installed kW) to incentivize renewable energy project development. To avoid suboptimal performance, utility programs often require as a condition of rebate eligibility that systems meet certain design and component performance requirements (e.g., modules and inverters must be listed by Underwriters Laboratories; minimum equipment warranties must be met; and certification and proper licensing of installers.)

Federal Financial Incentives

Federal financial incentives include the [solar investment tax credit \(ITC\)](#) and depreciation through the federal [Modified Accelerated Cost-Recovery System \(MACRS\)](#). The solar ITC is a 30 percent federal tax credit claimed against the tax liability of residential and commercial and utility investors in a solar energy property. As noted in Table 1, the solar ITC will step down to 26 percent in 2020, 22 percent in 2021, and 10 percent thereafter for commercial systems (and zero percent thereafter for residential systems). MACRS depreciation for a qualifying solar energy property has a cost recovery period of five years, which allows entities to deduct the depreciable basis over that period to reduce tax liability and accelerates the rate of return on solar investment. Some renewable energy projects may be able to take advantage of “[opportunity zone](#)” tax credits that are available in certain economically disadvantaged areas of the country. Tax-based financial incentives are not available to not-for-profit organizations.

Table 1. Solar ITC Step-down

Technology	2019	2020	2021	2022	After 2023
Solar PV, Solar Process Heat, Solar Space Heating/Cooling, Solar Water Heating	30%	26%	22%	10%	10%

Source: DSIRE – [Business Energy Investment Tax Credit \(ITC\)](#)

Property and Sales Tax Incentives

State and local governments may offer solar tax exemptions including exemptions to property and sales tax. Property tax exemptions allow businesses and homeowners to exclude the added value of a solar system from the valuation of their property for taxation purposes.

Policy Impacts to a Potential Solar or Other Renewable Energy Project:

- The availability of many financial incentives can vary among states and utility service classes, as well as by customer end use sector.
 - At the outset of developing a renewable energy project, it is important to understand what financial incentives are available for your project and how the level of available funding might impact the feasibility or the size of the project you are considering. If you are engaging with a renewable energy project through a third-party developer, the developer will identify available financial incentives. If you are developing your own self-financed project, you will need to conduct your own research into financial incentives that might be available to you.
- The solar ITC allows residential and commercial customers that install, develop, or finance the project to claim the currently available tax credit (see table above). The federal ITC and MACRS depreciation are not available to tax-exempt organizations, and thus in its absence may make a solar project less financially viable. However, with third party PPAs, a developer owns and operates the solar PV array on the customer's property, and then sells electricity to the organization under a power purchase contract. In this PPA model, a third party can monetize the tax credits and then share the benefit through lower energy prices to the customer. The power purchase contract between the owner of the project and the electricity buyer should also determine ownership and purchase of the associated energy attributes (e.g., RECs) so that the customer's use of the power can be claimed as renewable.
- Sales and property tax incentives generally provide an exemption from the state sales tax (or sales and use tax) or property tax for the purchase of a renewable energy system. This type of exemption helps to reduce the upfront costs of a renewable project installation.

Understand which Financial Incentives May be Accessible to You and their Impact Based Upon Your Solar Procurement Strategy with:

- [DSIRE's database of Performance-based Incentives](#)
- [DSIRE's database of Feed-in Tariffs](#)
- [DSIRE's database of Value of Solar Tariffs](#)
- [DSIRE's database of Rebate Programs](#)
- [DSIRE's Business Energy Investment Tax Credit \(ITC\)](#)
- [DSIRE's database of property tax incentives](#)
- [DSIRE's database of sales tax incentives](#)
- [DSIRE's Modified Accelerated Cost-Recovery System \(MACRS\)](#)

Financial Incentives Available to My Organization (Mark all that apply)

Performance-based Incentives:

Capacity-based Incentives:

Federal Financial Incentives:

Property and Sales Tax Incentives:

Note below any important information related to financial incentives for your solar project development, such as incentive rates (e.g. \$/kW capacity or \$/kWh output) and tax credits rates.

Additional Resources:

- EPA – [Community Choice Aggregation](#)
- NREL – [Community Choice Aggregation \(CCA\) Helping Communities Reach Renewable Energy Goals](#)
- NREL – [Community Choice Aggregation: Challenges, Opportunities, and Impacts on Renewable Energy Markets](#)
- MAPC – [Start a Community Choice Aggregation Program](#)

Contact Your Local Utility for More Information

In addition to the policies discussed in the previous sections, utilities sometimes have rules and regulations that apply to specific regions or customer classes. EPA recommends reaching out to a utility representative and asking him or her to clarify any location-specific or customer class policies that impact local renewable energy or solar project deployment. Here are some suggested questions to ask:

- Are any of your interconnection rules location-specific?
- If net metering is allowed, do compensation rates vary by region or type of customer?
- Are there any length-of-contract or exclusivity-of-service-provision regulations that apply to certain customers (e.g., municipal governments)?
- Does the utility offer any green tariff provisions, utility-sponsored community solar programs, or other initiatives that customers can participate in?

Write down answers in the space provided:

Utilities often partner with certain types or size of customers to help facilitate increased renewable energy generation. It's a good idea to reach out to them early in the process to explain your organization's goals and build a relationship.

Seek Out Technical Assistance and Further Advice, as Necessary

The above considerations cover the relevant policy know-how that most organizations will need to get started on a solar project. However, if there are remaining questions, officials can reach out to one or more of the resources below for advice.

- The EPA Local Government Solar Project Portal's Ask the Expert page
- [NREL's Solar Resources for Local Governments page](#)
- [DOE's SolSmart Technical Assistance page](#)
- Contact [VoteSolar.org](#), which publishes policy guides and factsheets
- Your municipal general counsel or lawyer for specific legal questions.

Further questions to investigate:

Write down answers and notes in the space provided:

Summary Table

The left-hand column of the table below lists the steps involved in a “typical” or “simplified” renewable energy project development process. The right-hand column lists the specific policies that may factor into each respective project development step.

RE Development Process	Areas of Process Informed by Policy Findings
Step 1: Set a Goal	<ul style="list-style-type: none"> • Market Structure • Renewable Portfolio Standards (RPS) and Solar Carve-out Policies • Financial Incentives
Step 2: Identify Sites	<ul style="list-style-type: none"> • Alternative Net Metering Policies • Community Solar Policies
Step 3: Collect Utility and Site Data	<ul style="list-style-type: none"> • Interconnection Standards • Local Permitting and Inspection • Financial Incentives
Step 4: Evaluate Site Options (REopt Lite)	<ul style="list-style-type: none"> • Net Metering Policies • Alternative Net Metering Policies • Community Solar Policies • Community Choice Aggregation (CCA)
Step 5: Choose Financing Option	<ul style="list-style-type: none"> • Third-Party Ownership Authorization Policies • Market Structure • Renewable Portfolio Standards (RPS) and Solar Carve-out Policies • Financial Incentives • Property and Sales Tax Incentives
Step 6: Solicit Project Proposals (RFP)	<ul style="list-style-type: none"> • Third-Party Ownership Authorization Policies • Renewable Portfolio Standards (RPS) and Solar Carve-out Policies • Net Metering Policies • Alternative Net Metering Policies • Interconnection Standards • Local Permitting and Inspection • Financial Incentives • Community Solar Policies
Step 7: Evaluate Project Proposals	<ul style="list-style-type: none"> • Renewable Portfolio Standards (RPS) and Solar Carve-out Policies • Financial Incentives
Step 8: Sign a Contract	