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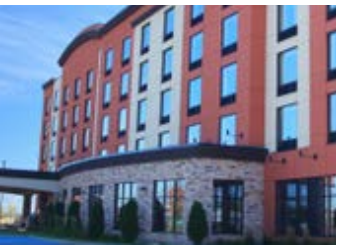


Midmarket Solar Policies in the United States

A Guide for Midsized Solar Customers

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Midmarket Solar Policies in the United States: A Guide for Midsized Solar Customers

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List of Acronyms

ACORE	American Council On Renewable Energy
AEL	Advanced Energy Legislation
DOE	Department of Energy
DSIRE	Database of State Incentives for Renewables & Efficiency
GTM	Greentech Media
ITC	investment tax credit
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour
MACRS	Modified Accelerated Cost Recovery System
MW	megawatt
MW_{DC}	megawatt direct current
MWh	megawatt-hour
NREL	National Renewable Energy Laboratory
PACE	Property-Assessed Clean Energy
PPA	power purchase agreement
PTO	permission to operate
PV	photovoltaics
REC	renewable energy certificates
RPS	renewable portfolio standard
SCE	Southern California Edison
SEIA	Solar Energy Industries Association
SEPA	Solar Electric Power Association
SLED	State & Local Energy Data
SPOT	State Policy Opportunity Tracker
SREC	solar renewable energy certificates
TPO	third-party ownership

Executive Summary

The midscale market for solar photovoltaics (PV) has not experienced the same high growth rate as residential- or utility-scale market segments in the past five years when solar PV deployment increased rapidly. Midscale solar can be defined as **behind-the-meter solar PV between 50 kilowatts and 2 megawatts** adopted by multi-housing residential, commercial, industrial, non-profit, and other entities. A number of challenges face the midscale segment, including difficulties in contracting, mismatch between tenant lease and PV financing terms, high transaction costs relative to project sizes, and inefficiencies in matching prospective projects with capital.

The changing policy landscape across U.S. states provides both opportunities and challenges to midmarket solar. Some states, such as California, are expanding system capacity limits for policies such as net metering, thus enabling a wider range of customers to benefit from excess generation. A number of states and utilities are making changes to rate design to introduce new or higher user fees for solar customers or reduced tariffs for net metering, which decrease the value of solar generation. An understanding of these policies relative to project feasibility and economics is important for prospective customers to make informed decisions to adopt solar PV. This guide complements existing solar policy resources to help potential customers navigate through the policy landscape in order to make informed decisions for their solar investment.

The first part of this guide introduces the key solar policies necessary for policy-based decision-making, which involves using knowledge of a solar policy to improve project economics and efficiency. Policies that could result in policy-based decisions include interconnection standards, net metering, user fees, incentives, and third-party ownership policies. The goal of this section is to equip prospective customers and project developers with the tools necessary to understand and use solar policies in a dynamic policy environment.

The second part of this guide provides a complete, state-by-state inventory of midmarket solar policies for potential customers and developers to use as reference when making policy-based decisions. Although solar policies are dynamic, the profiles provide a framework for assessing policies to build the parameters that could be used to determine feasibility and structure of a solar PV system for midmarket customers and developers.

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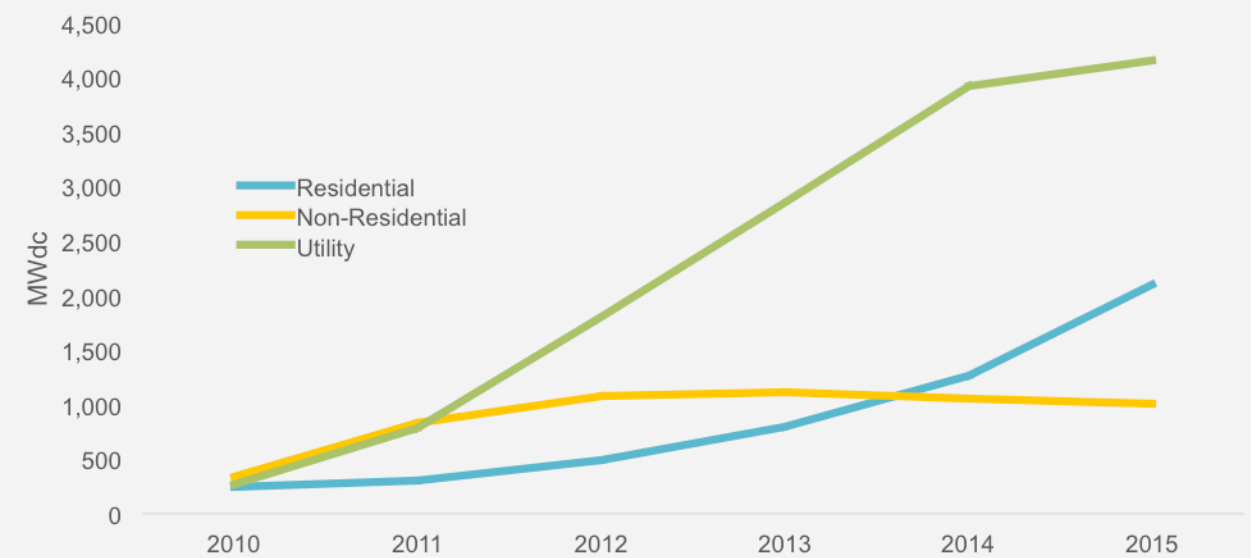
Introduction

Midscale Solar PV in the United States

Solar photovoltaic (PV) generation has experienced rapid growth in the past five years. Annual added installations grew from just over 850 megawatts direct current (MW_{DC}) in 2010 to 7,260 MW_{DC} in 2015 (GTM/SEIA 2016). Utility-scale solar and residential solar both experienced high growth rates in recent years. However, growth in the distributed, nonresidential segment has stagnated since 2011. As shown in Figure 1, the segment has plateaued in growth, adding only about 1,000 MW every year from 2012 to 2015 (GTM/SEIA 2016). The nonresidential sector is indicative of the size of midmarket solar.



Based on GTM/SEIA 2016

Figure 1. U.S. solar PV annual capacity additions by segment

Some of the key market factors hindering the growth of the nonresidential segment include inefficiencies in matching commercial projects with capital, particularly the tax equity needed to capture tax incentives; difficulties in achieving standardization of contracts; and high transaction costs relative to system size. In addition, the solar market has been partly driven by state-level policies and mechanisms, such as net metering, rebates, solar renewable energy certificates (SRECs), rebates, and loans. System capacity limits, exclusion of certain sectors, and other policies and regulations can hinder or propel market growth. For example, California's net energy metering successor tariff, also known as Net Energy Metering 2.0, lifts the 1 MW system size limit, allowing customers seeking to build projects with more than 1 MW in capacity to capture the value of excess generation. The policy environment within each state is dynamic, but an understanding of the basic policy components is important for customers to make investment and development decisions.

The midmarket segment has been defined differently by various sources. Some, such as the Solar Energy Industries Association (SEIA), Greentech Media, and the Interstate Renewable Energy Council, identify the segment based on the customer and interconnection type (e.g., commercial and industrial customers with "behind-the-meter" systems) (GTM/SEIA 2016; IREC 2014). Others, such as *Tracking the Sun*, cap nonresidential PV at a specific capacity (e.g., 5 MW) (Barbose and Darghouth 2016). Some solar companies created business segments and financial products targeting midmarket solar based on capacity (e.g., 50 kilowatts [kW] to 2 MW, or 740 kW to 20 MW) (Cordes 2015; Kiler 2014). The NREL study, *Expanding Midscale Solar: Examining the Economic Potential, Barriers, and Opportunities at Offices, Hotels, Warehouses, and Universities,* defines midscale solar as behind-the-meter systems between 100 kW and 2 MW (Bird 2016). Referencing these definitions, this guide identifies the solar "midmarket" or "midsized systems" as those **"behind-the-meter" PV systems with a generation**

capacity between 50 kW and 2 MW. This loose definition encompasses a wider range of potential midmarket customers while focusing on the segment of the market facing similar sets of challenges in growth.

Purpose of this Guide

Many resources exist to help prospective solar customers navigate federal, state, and local solar policy environments (see Appendix). This guide complements these existing resources with an emphasis on policy-based decision-making for midscale behind-the-meter solar projects, or "midmarket projects." This guide highlights policy gaps and opportunities in select state policies that either exclude or enable midmarket projects.

Midmarket stakeholders that can benefit from this guide include:

- ✓ **Prospective midmarket customers:** State policies directly affect the technical and economic viability of a prospective customer's investment. Information asymmetry between project developers and customers may reduce the negotiating power of customers and affects the financial outcome from the customer's perspective. The Midmarket Solar Policy Guide aims to increase solar policy knowledge so that prospective midmarket solar customers may make informed decisions on solar investments. Potential customers include large residential customers, condominiums and other living communities, commercial entities, industrial entities, nonprofits, government entities, schools and universities, agricultural customers, and community solar participants.
- ✓ **Project developers**: Solar project developers, particularly those concentrating on midscale projects or community solar projects, and developers working in multiple states.

Organization of this Guide

Part 1 of this guide introduces the key solar policies necessary for policy-based decision-making as well as snapshots of state solar policies. The goal of this section is to equip prospective customers and project developers with the tools necessary to understand and use solar policies in a dynamic policy environment.

Part 2 provides a complete, state-by-state inventory of midmarket solar policies for potential customers and developers to use as reference when making policy-based decisions. Although solar policies may change, the profiles provide a framework for assessing policies to build the parameters that could be used to determine feasibility and structure of a solar PV system for midmarket customers.

Scope of Midmarket Policies Covered

This guide covers active state- and utility-level policies that could result in a policy-based decision during solar PV project development. A **policy-based decision** uses knowledge of a solar policy to improve project economics and efficiency. Policies that could result in policy-based decisions include interconnection standards, net metering, user fees, incentives, and third-party ownership policies. Policies that do not result in policy-based decisions are outside the scope of this guide. Figure 2 illustrates the concepts behind in-scope and out-of-scope policies.

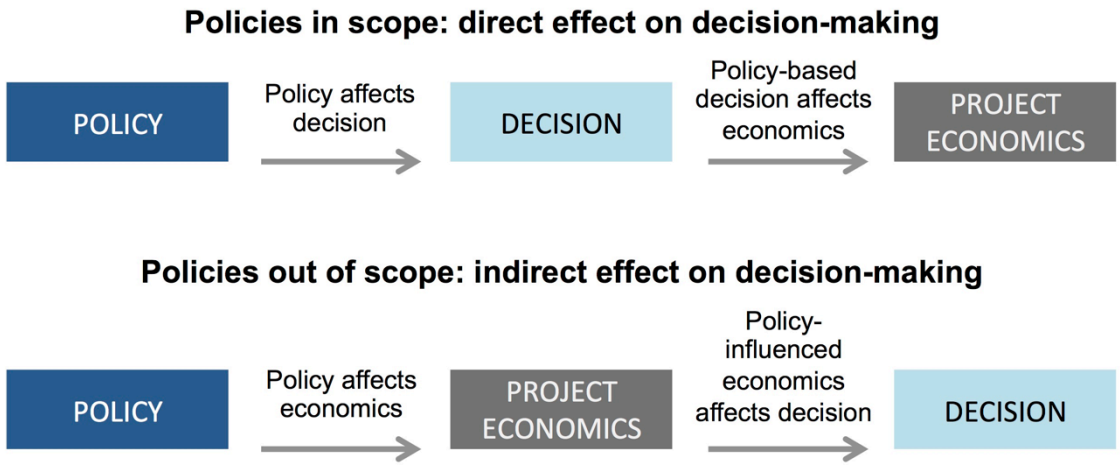


Figure 2. In-scope and out-of-scope policy considerations for midmarket solar decisions

Out-of-scope policies with an indirect effect on project decision-making include: building energy standards, construction requirements, solar PV manufacturing incentives,[1] and solar practitioner requirements. Out-of-scope policies affect project economics prior to project decision-making. For example, building standards may stipulate all new construction to be "solar ready," or suitable for rooftop solar. This decreases barriers to solar installation within that jurisdiction, and a prospective solar customer would perceive the effects of the policy in terms of a lower barrier to install solar. However, developers or customers would not be able to use this knowledge to change the size, scope, or structure of the project to further improve project economics.

In contrast, a project developer's knowledge of an interconnection standard may allow the developer to modify the system's site or size to improve the technical and economic viability of the project. Prospective customers commonly modify ownership structures to take advantage of various solar PV incentives. The goal of this guide is to promote more informed policy-based decision-making.

[1] When solar PV manufacturing policies are tied to incentives for PV generation, the policy does affect project economics. For example, Washington offers production-based incentives for solar generation of $0.15/kWh to $0.54/kWh depending on whether and how much "Made in Washington" equipment is used.

Part 1: A Guide to Policy-Based Decision-Making for Midmarket Solar PV

Part 1 of this guide introduces the state-level policies that most directly affect policy-based decisions: renewable portfolio standards (RPSs) and renewable energy certificates (RECs), net metering, interconnection rules, state-level financial incentives (e.g., grants, rebates, production-based incentives, loans, and tax exemption and incentives), and utility incentives and programs. The guide provides a description of each policy, explains the implications of the policy for prospective customers, and provides a user "checklist" to interpret and use the policy in the decision-making process.

State solar policies are often designed for specific market segments, either defined by system size or customer class of the prospective system owner or off-taker. The inclusion or exclusion of certain market segments has created a patchwork of solar policies that can exclude midscale projects from receiving benefits. This section includes a summary of policy "gaps" based on size limits that exclude the midmarket.

Below is an example of the figures used to illustrate a gap—a policy that excludes a portion of the midmarket:

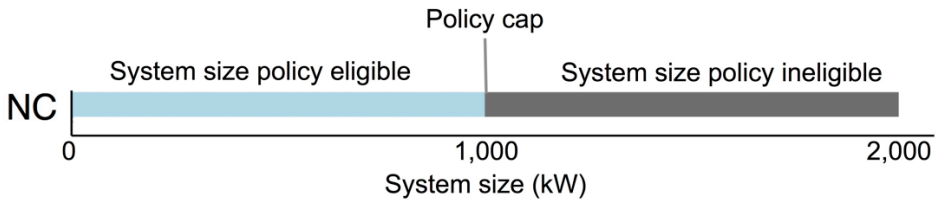


Figure 3. Example of policy gap illustration for select policies

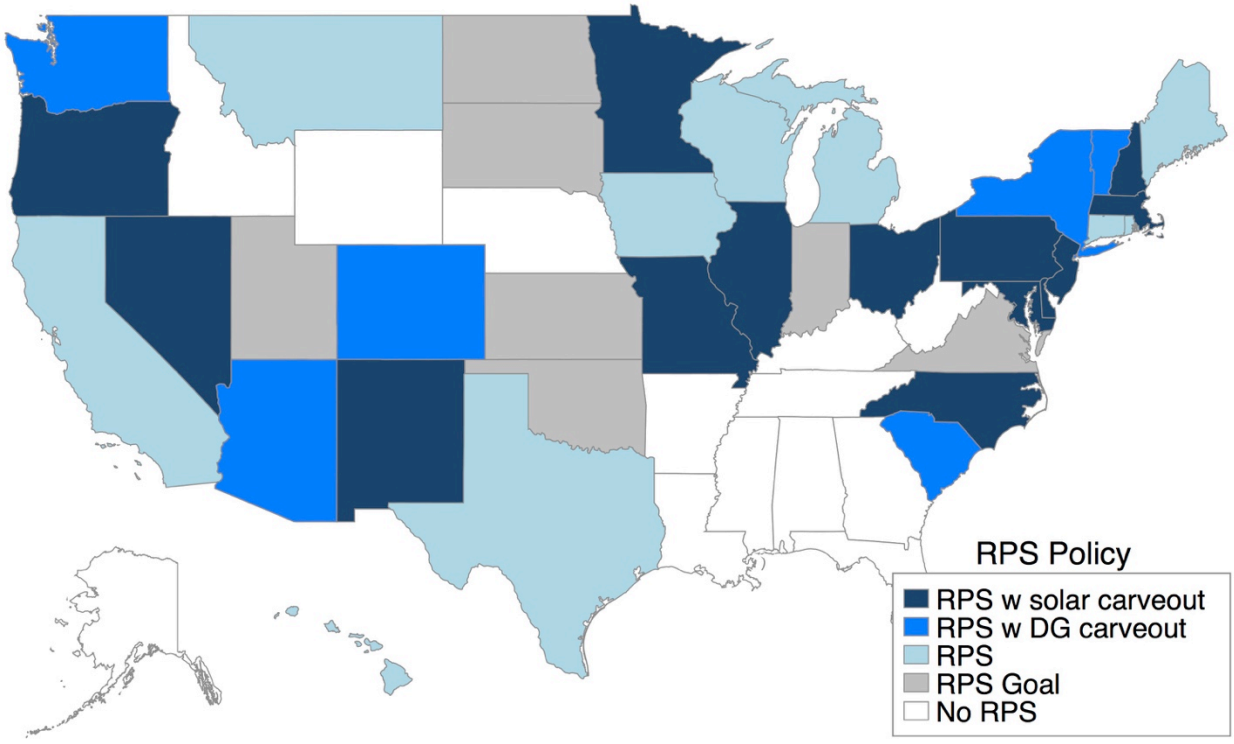
In this example, North Carolina has a policy applicable to all solar systems up to 1,000 kW. The figure shows the eligible system sizes in light blue and ineligible system sizes in gray. The figure conveys that the policy effectively excludes about half of the midmarket system size spectrum.

Renewable Portfolio Standards/Renewable Energy Certificates

An RPS requires load-serving entities to generate or procure a given amount of renewable energy within the state. Load-serving entities typically demonstrate RPS compliance through the generation or procurement of **RECs.** Each REC represents the clean energy or environmental attributes of one megawatt-hour (MWh) of electricity generated from qualifying renewable resources. By generating demand for RECs, RPSs create a market for solar generation as a saleable or tradable asset. The sale and purchase of RECs for RPS compliance is commonly referred to as the "compliance market." A separate market exists for voluntary RECs, which are typically priced much lower than compliance RECs.[2]

Many states and Washington, D.C. provide extra incentives for electricity generated from solar or distributed energy used to meet RPS requirements. This can be done through a **solar credit multiplier** to increase the value of RECs generated from solar. If a state has a multiplier of two for distributed solar, the PV system is credited 2 MWh (2 RECs) for each megawatt-hour generated with respect to RPS compliance.

[2] The Green Power Network provides information on voluntary REC prices and markets: http://apps3.eere.energy.gov/greenpower/.



Note: "RPS" indicates state policy that has a mandatory requirement for renewable energy or alternative energy. "RPS Goal" indicates voluntary renewable energy goal.
Based on data from the Database of State Incentives for Renewables and Efficiency (DSIRE)

Figure 4. Summary map of RPS and solar and distributed generation carve-outs (as of August 2016)

Some states also require load-serving entities to meet a certain percentage or amount of their RPS through a **carve-out for solar generation**. These states created solar renewable energy certificate (**SREC)** markets for utilities to meet their solar targets. The price ceiling in SREC markets is usually determined by a fine, or alternative compliance payment, that the load-serving entity would have to pay for failing to meet the requirement. Seven states (Ohio, Pennsylvania, New Jersey, Massachusetts, Delaware, New Hampshire, and Maryland) plus Washington, D.C. have a solar carve-out and a competitive SREC market. Neighboring states may be eligible to participate in these markets. Depending on the state's policy, out-of-state SRECs and in-state SRECs may have different prices.

Implications for Prospective Midmarket Customers

The presence or absence of a compliance market and whether prospective customers choose to sell solar energy into compliance markets has significant impact on project economics. REC sales can provide a significant revenue stream, particularly in markets with high alternative compliance payments.[3] However, the decision to sell or retain RECs has implications beyond the financial viability of the project. **REC ownership** determines who can make a legal claim to the clean energy attributes of solar generation. An institution that sells its RECs loses the right to claim ownership of the clean energy output of its system's generation. Claims of RECs may be important for midmarket customers that seek to use solar output to meet institutional environmental goals.

[3] Washington, D.C., for example, has the country's highest alternative compliance payment of $500/MWh in 2016. The price for SRECs in DC is approximately $480/MWh in July 2016, according to SRECTrade.

RPS/REC POLICY CHECKLIST

- ✓ *Availability of REC or SREC market:* SREC markets may not be available in some states, even if the state has an RPS or solar carve-out. States without an RPS may still be able to participate in REC or SREC markets of other states. Participation in SREC markets may provide strong economic incentives for developers and customers. However, volatility of SREC markets is a consideration when calculating project economics.
- ✓ *Decision to sell RECs*: The revenue from RECs may be necessary to provide the internal rate of return a solar project needs. The customer can consider the costs and benefits of retention of its RECs in relation to financial viability of the project and institutional goals.
- ✓ *Eligibility for solar or distributed generation multiplier or factor:* States may place qualifications, such as system size and sector, on a solar or distributed generation multiplier. The system size must be within the specified range to receive the incentive.

RPS/REC RESOURCES:

U.S. Department of Energy Green Power Markets: Renewable Energy Certificates http://apps3.eere.energy.gov/greenpower/markets/certificates.shtml?page=3

SRECTrade: Solar markets including eligible SREC markets and tracking systems http://www.srectrade.com/srec_markets/introduction

NREL: *Status and Trends in the U.S. Voluntary Green Power Market* http://www.nrel.gov/docs/fy16osti/65252.pdf

NREL: *Renewable Electricity: How Do You Know You Are Using It?* http://www.nrel.gov/docs/fy15osti/64558.pdf

Center for Resource Solutions: *Guidelines for Renewable Energy Claims* http://resource-solutions.org/site/wp-content/uploads/2015/07/Guidelines-for-Renewable-Energy-Claims.pdf

Net Metering

Net metering is an on-bill mechanism that allows or requires utilities to compensate solar system owners for **net excess generation** delivered to the grid. Net metering standards vary significantly across states in terms of the rate at which customers are compensated for excess generation, eligible size, user rate, and total program capacity.

As of August 2016, 45 states and Washington, D.C. offer some form of net metering. Most states identify a system size capacity limit for their net metering program. Figure 5 illustrates net metering policy and size caps relative to the midmarket system size spectrum.

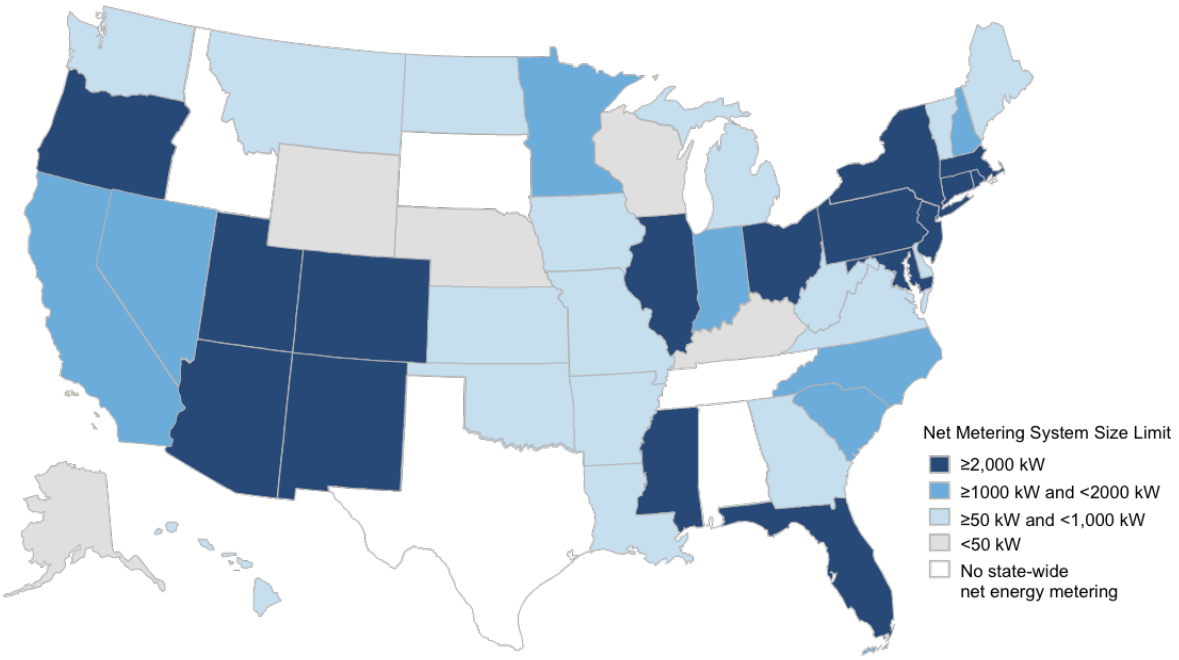


Figure 5. Summary map of state net energy metering policies and system size limits (as of August 2016)

Five states do not have a statewide net metering policy, although some states allow for utilities to offer net metering or other bill credit mechanisms for solar PV. Five states have a system capacity limit less than 50 kW, which excludes midmarket customers from participation. Sixteen states set a system capacity limit that is 50 kW or above but below 1 MW. Another seven states and Washington, DC have a system capacity limit of 1 MW. Seventeen states have set their system size cap at 2 MW, greater than 2 MW, or have no cap, providing opportunities for a large spectrum of midmarket customers to benefit from net metering.

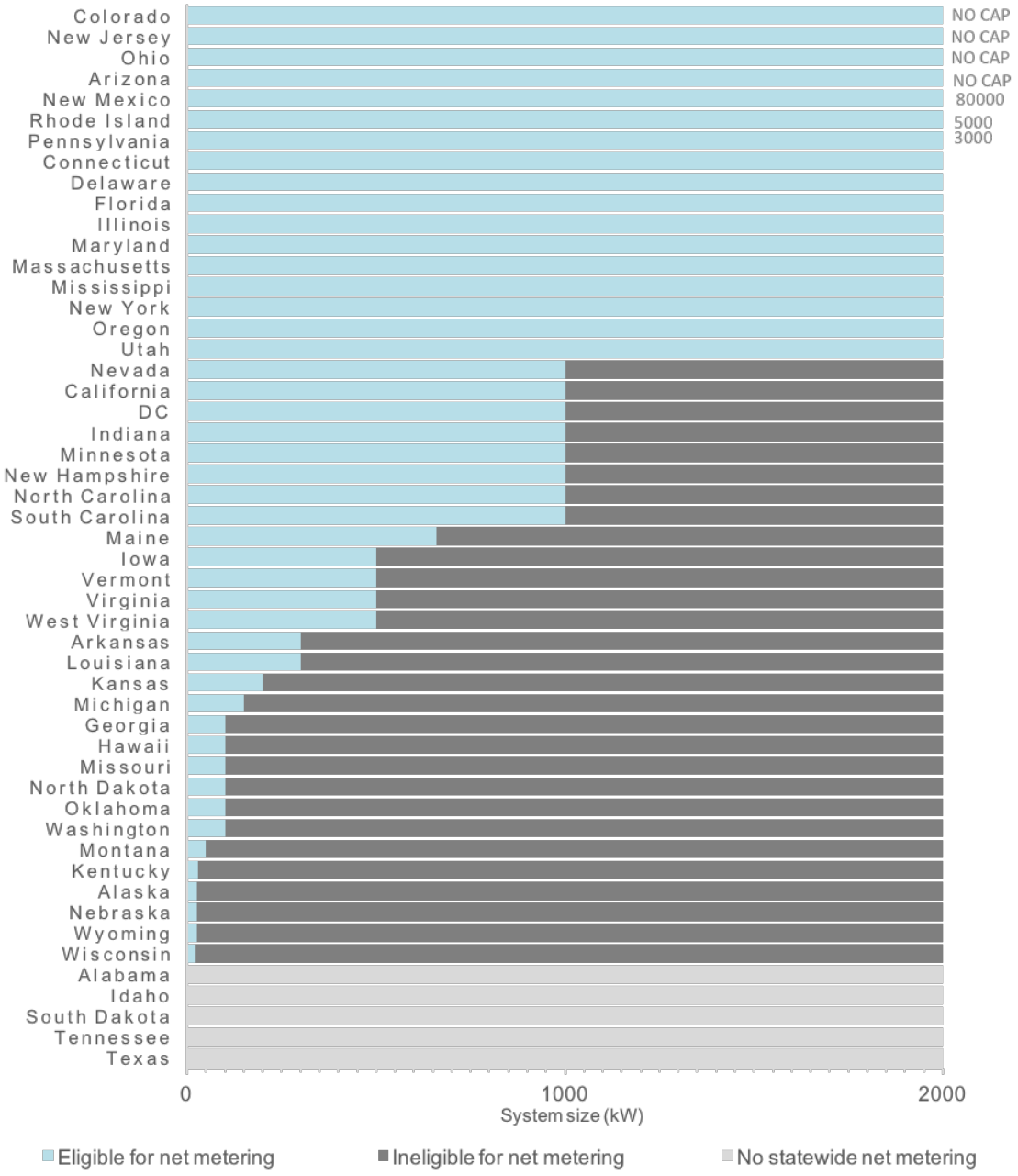


Figure 6. Summary of net metering system capacity limits

Aggregate net metering allows for owners with multiple meters on one property or adjacent properties to implement net metering. **Virtual net metering** compensates electricity customers for the output of a solar system not sited on their property. Virtual net metering allows electricity customers to invest in an offsite solar system and receive financial benefits in proportion to their investment. **Community solar** has emerged as a rapidly growing model that employs the virtual net metering concept. In a community solar model, electricity customers subscribe to a portion of a shared solar array developed under third-party ownership (TPO) or a utility. Community solar subscribers can be compensated for their investment through on-bill mechanisms administered by the utility or a special-purpose private entity.

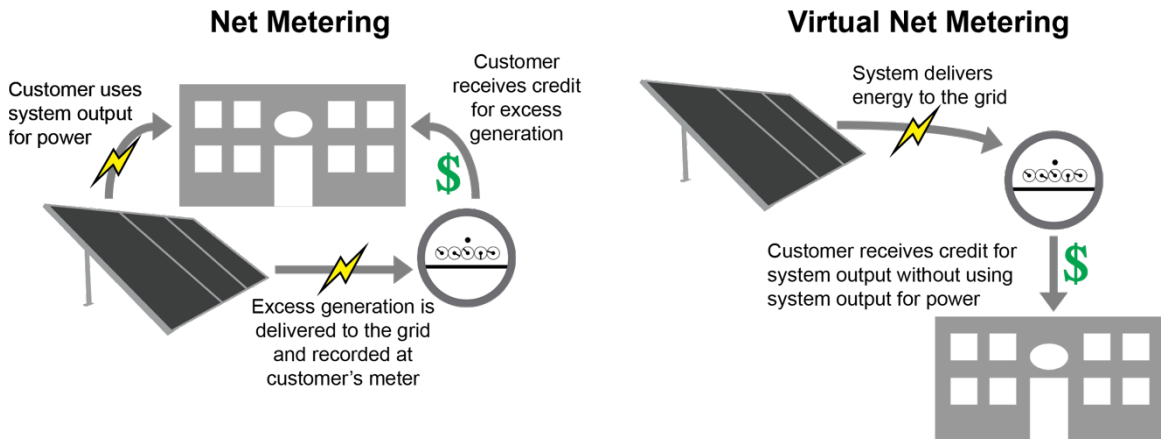


Figure 7. Comparison of net metering and virtual net metering

User fees refer to any additional electricity cost that a customer accrues as a result of installing a solar system. **Customer (fixed) charges** are flat monthly fees levied on customers regardless of electricity use. **Demand charges** are fees based on peak customer demand. Utilities typically only levy demand charges on nonresidential customers; however, some utilities have proposed expanding demand charges to residential solar PV customers. **Standby rates** are levied on customers with their own generation that require a backup source from the utility. Some utilities have increased (or are proposing to increase) application of these charges to solar PV customers. Utilities typically recoup some portion of their fixed costs through volumetric electricity rates. Therefore, some have imposed higher user fees on solar customers than those without solar.

Some states have developed **"safe harbor"** language that protects solar PV customers from user fees. Common safe harbor requirements include language that explicitly forbids utilities from applying standby rates to solar PV customers.

Utilities may also facilitate midmarket customers with more favorable rates when they install solar. For example, Southern California Edison provides commercial and industrial customers the option to switch to Option R tariff, a time-of-use rate for customers with renewable energy generation. The rate structure has no on-peak or mid-peak demand charges and reduced facilities-related demand charges in exchange for higher energy charges. By consolidating part of the demand charge in the variable component, this rate structure reduces the impact of solar generation's intermittency and encourages commercial customers to shift to off-peak electricity usage. Having solar generation and this rate structure helps reduce demand charges relative to not having solar generation, which not only improves savings for the commercial property, but also facilitates in solar project development and financing (SCE, 2016).

Implications for Prospective Midmarket Customers

Net metering can significantly improve the internal rate of return of solar investments by adding an additional, long-term revenue stream to the project. Net metering effectively allows PV customers to reduce their electricity bills by offsetting grid-based consumption during times of PV under-production with excess generation during times of PV over-production. The rate at which PV customers are compensated for excess generation determines the magnitude of the potential bill reduction through net metering.

A 2014 study found that applying a time-of-use rate to net metering credits rather than a flat rate would have a median bill savings increase of 13% (Darghouth et al. 2014).[4] Project planners can factor long-term bill savings from net metering, based on state-specific compensation rates, into the financial planning of solar projects.

[4] Study based on residential PV systems in California.

Meter aggregation is an important consideration for customers with multiple users and meters, such as commercial developments, multi-unit housing, apartments, and municipalities and school districts with multiple buildings.

NET METERING POLICY CHECKLIST

- ✓ *System size limits:* Many states limit the size of the system that qualifies for net metering. Customers and developers should ensure the size of the system under consideration is eligible for the program.
- ✓ *Ensure rates are favorable to project economics:* The rate at which net metering customers are compensated for net excess generation varies by state and utility. Most states will credit the customer at the retail rate, but some states credit the net excess generation at an avoided cost rate.[5]
- ✓ *Aggregate capacity limit:* Most states specify a limit on the total amount of net metering allowed within a state or within a utility. Assessment of availability of net metering in the sector is important to determine when to build the project and how much capacity to build. In certain instances, the limit is different for systems above a certain size threshold or systems serving the nonresidential sector. Public utilities commissions or utilities can provide this information.
- ✓ *Ownership of RECs*: Customers can confirm if REC ownership remains with the customer or will be transferred to the utility or other entities.

NET METERING RESOURCES:

Freeing the Grid: Up-to-date net metering policies for each state
http://freeingthegrid.org/

NREL: *Value of Solar: Program Design and Implementation Considerations*
http://www.nrel.gov/docs/fy15osti/62361.pdf

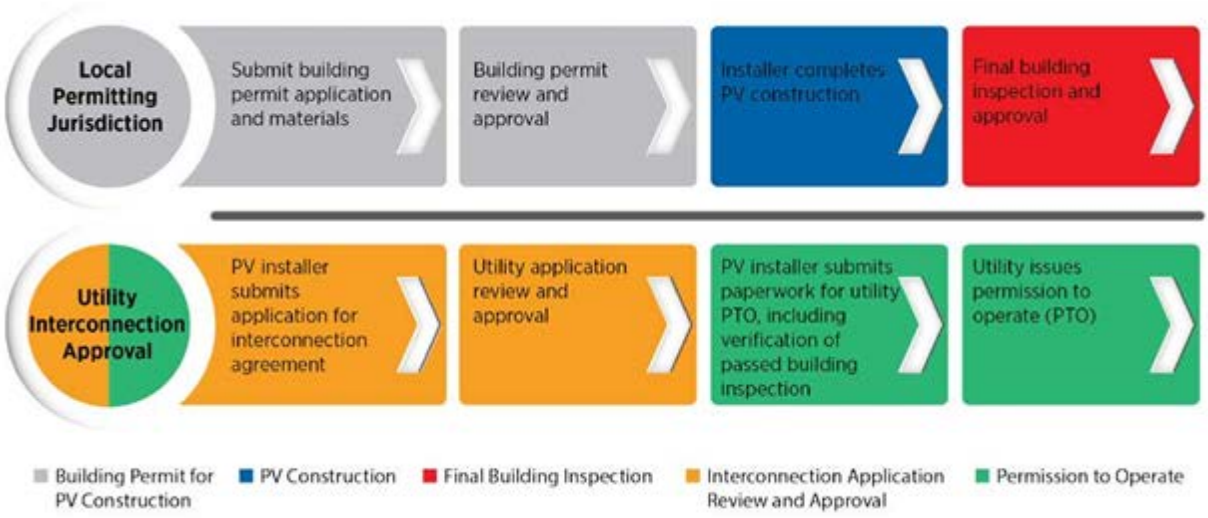
Solar America Board for Codes and Standards: A Generalized Approach to Assessing the Rate Impacts of Net Energy Metering
http://www.solarabcs.org/about/publications/reports/rateimpact/index.html

Interconnection and Permitting

Interconnection, or the process of connecting a distributed renewable energy system to the grid, is a multifaceted process that considers the safety and power quality of grid-tied distributed power systems. State-level interconnection standards influence the up-front transaction costs of solar projects. These additional costs may take the form of legal and procedural costs to secure interconnection agreements and the relevant permits, or direct costs in the form of interconnection fees (e.g., permitting fees, engineering and inspection fees, metering charges, equipment fee). Therefore, understanding and accounting for the costs embedded in interconnection and policy procedures can be an important component in the financial planning of a project.

Directly related to interconnection is the permitting process. Solar system installations can require a variety of permits depending on the jurisdiction, including electrical permits, interconnection permits, building permits, and zoning permits. Permitting rules and regulations are within the jurisdiction of local authorities and are not within the scope of this guide.

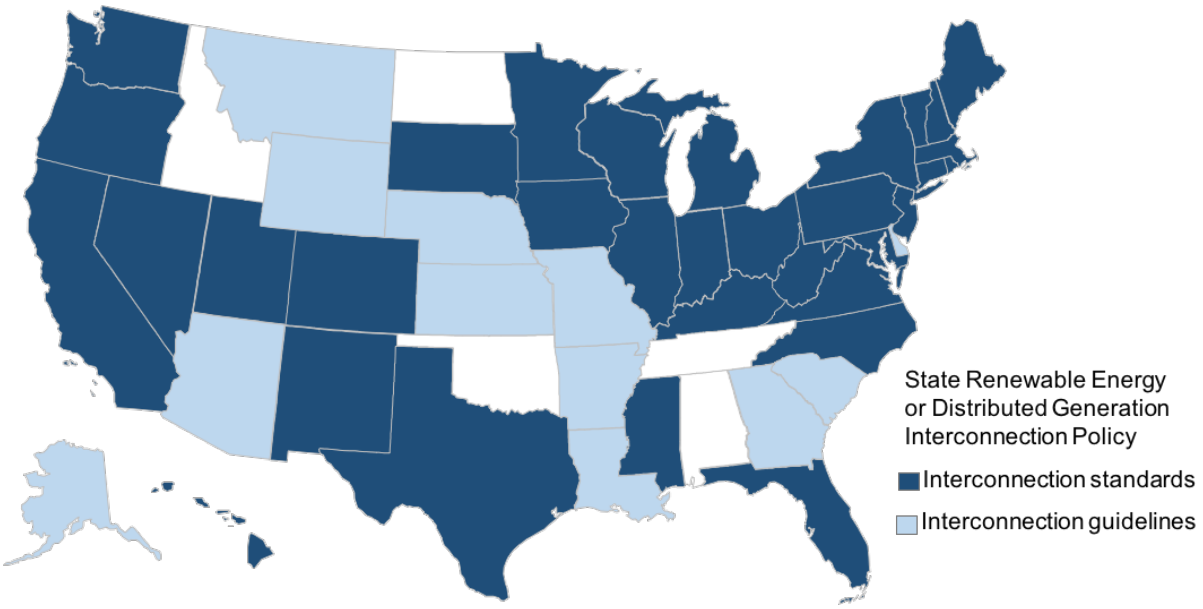
[5] The avoided cost rate is usually determined in proceedings before utilities regulatory with inconsistent methodologies across states. The rate is generally lower than the retail rate.



Source: Ardani et al. 2015

Figure 8. Process for solar PV permitting and interconnection

To date, 46 states have implemented interconnection standards or guidelines. Most of these procedures differ among states in terms of standard form agreements, capacity limits, timelines, insurance requirements, and technical requirements. A number of these states' interconnection guidelines apply to net metered systems only. Figure 9 summarizes availability of state interconnection standards and guidelines.



Based on data from DSIRE

Figure 9. Summary map of state interconnection policies (as of August 2016)

Implications for Prospective Midmarket Customers

The interconnection process often poses a sizable cost burden for distributed solar projects due to potentially complex impact studies, long processing times, and lack of certainty regarding approval. Ardani et al. (2015) found that project delays due to interconnection are more common for the midscale projects than for smaller distributed PV projects (250 kW and under), with detailed impact study commonly required for any project greater than 1 MW. Customers and developers can consider downsizing projects to avoid the detailed study process, which can place financing at risk or incur high costs.

In addition to cost, compliance with interconnection standards ensures system safety and power quality. Appropriate system interconnection can reduce fire hazards (Falvo and Capparella 2015), prevent shock hazards for utility personnel during "islanding" events, and prevent damage to the customer's equipment (IREC 2013). Appropriate interconnection can also reduce the potentially detrimental effects of a distributed system on the power quality of proximate electricity customers. For example, distributed systems can cause voltage fluctuations on the surrounding grid, which may prompt utility intervention and require the customer to address the issue (IREC 2013).

INTERCONNECTION POLICY CHECKLIST

- ✓ *Availability of standardized interconnection for small generators*: Customers can review state policy for standard interconnection to assess if the sector and type of solar PV system is eligible for standard interconnection. Although the state sets interconnection processes and standards, the local utility implements the final interconnection rules.
- ✓ *System size limits:* States with standardized interconnection standards may have capacity limits and possibly voltage specifications. Often, states exclude smaller systems from the more rigorous interconnection requirements applicable to larger systems.
- ✓ *Availability of online application portal:* Online application process typically shortens the interconnection process compared to manual application (SEPA 2014).
- ✓ *Qualification for fast-track or expedited interconnection*: Availability of fast-track interconnection can be an important factor to consider for midmarket customers. Most states only offer fast-track interconnection for small inverter-based systems (10 kW to 25 kW). However, midscale systems may qualify for expedited interconnection.
- ✓ *Insurance requirements*: Many states' standard interconnection agreements require liability insurance, as well as other types of insurance. Midscale systems may require a higher coverage than small systems.
- ✓ *Safety equipment:* Many states require the customer to install an external disconnect switch. Some states and utilities waive the requirement for small, inverter-based systems up to 10 kW or 25 kW. Others waive the requirement for even larger inverter-based systems. Check with local utility to determine if an external disconnect switch is required and who bears the cost.

INTERCONNECTION RESOURCES:

Freeing the Grid: Best Practices in Net Metering Policies and Interconnection Procedures http://freeingthegrid.org/

Solar Electric Power Association (SEPA): *Distributed Solar Interconnection Challenges and Best Practices*. https://www.solarelectricpower.org/media/224744/SEPA-Interconnection-Report-1014-email.pdf

NREL: *A State-Level Comparison of Processes and Timelines for Distributed Photovoltaic Interconnection in the United States* http://www.nrel.gov/docs/fy15osti/64558.pdf

Center for Resource Solutions: *Guidelines for Renewable Energy Claims* http://resource-solutions.org/site/wp-content/uploads/2015/07/Guidelines-for-Renewable-Energy-Claims.pdf

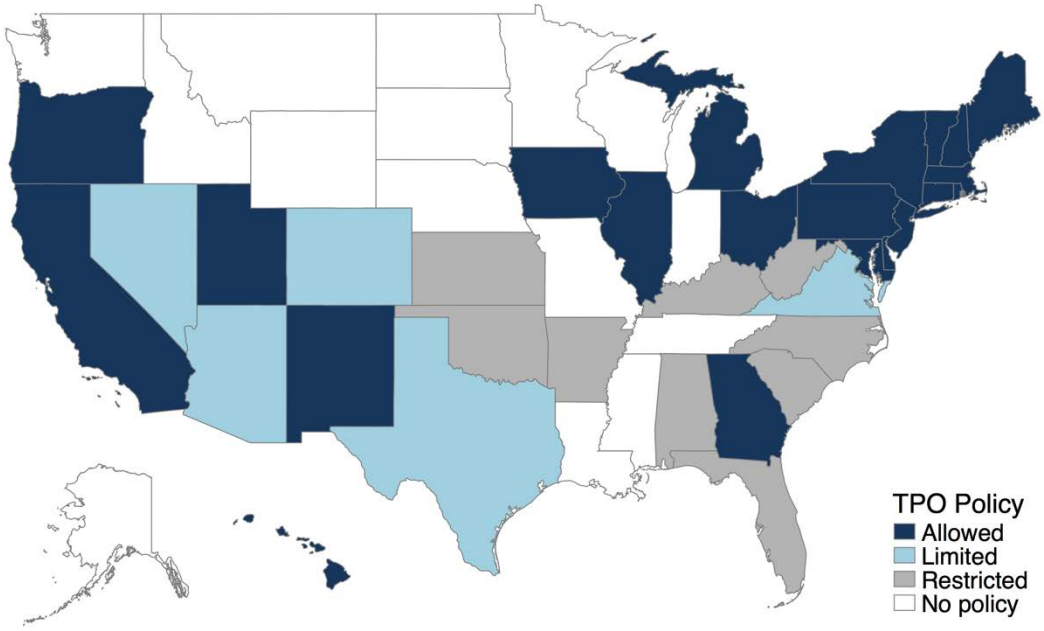
Interstate Renewable Energy Council (IREC): *Model Interconnection Procedures* http://www.irecusa.org/wp-content/uploads/2014/11/2013-IREC-Interconnection-Model-Procedures-3.pdf

Third-Party Ownership Enabling Policies

In the past decade, the most common alternative business model for solar PV procurement has been third-party ownership (TPO). In a TPO model, a solar customer pays for the power output of a system owned and operated by a third-party system owner. A common contract in the TPO model is the power purchase agreement (PPA), where the solar customer enters into a long-term contract for the power output of a TPO system. The system may or may not be sited on the customer's property.

Many state policies characterize and regulate TPO system owners as utilities. When TPO systems are subject to utility-level regulation, the TPO model does not provide the same level of efficiencies to drive deployment. Some states have re-characterized TPO agreements to protect TPO system owners from utility-level regulation. Where TPO is explicitly or implicitly prohibited, some states have developed alternative direct access and "green tariff" policies. Direct access policies allow eligible customers to contract directly with an electric service provider in an otherwise regulated market. Green tariffs allow customers to purchase the power output of a renewable energy project with the utility as a conduit for the purchase.

Twenty-five states and Washington, D.C. have authorized third-party PPAs for solar PV. In addition, five utilities have developed green tariff programs that allow large customers to contract directly with a solar PV provider. Figure 10 summarizes state policies for third-party ownership.



Source: DSIRE database

Figure 10. Summary map of state policies for third-party ownership (as of August 2016)

Table 1. TPO Policy Exclusions

State	TPO Limitations
Arizona	The deregulation of third-party PPAs is limited to schools, government, or other nonprofit entities.
Colorado	Limited to systems that generate no more than 120% of the average annual electricity consumption of the host.
Nevada	Limited to systems that generate no more than 150% of the average annual electricity consumption of the host.
Texas	Limited to systems that generate no more than the average annual electricity consumption of the host.
Virginia	Limited to systems between 50 kW and 1 MW.

Implications for Prospective Midmarket Customers

Third-party PPAs can help drive midscale solar, particularly for entities unable to monetize federal tax credits such as nonprofits, small businesses, and schools. Third-party financing options help avoid up-front capital, which can discourage midscale solar projects due to the relatively large capital investment. The customer, which usually does not have experience in solar energy, would not need to operate and maintain the system under a PPA scheme and would not bear the risk of solar system performance. PPAs are considered off-balance sheet financing, which does not list the project's assets and liabilities on the host's balance sheet, but are deducted as an operating expense. Off-balance sheet financing might be more attractive for a taxable site host with a higher expected rate of return (Bolinger 2009).

TPO/PPA POLICY CHECKLIST

- ✓ *Existing policy on TPO:* Availability of enabling policies that allow PPA contracts to be signed between a developer and a facility host differs from state to state. In certain cases, the law is not clear. Customers may pursue a lease model with a third-party financier or developer to avoid up-front costs.
- ✓ *PPA model's compatibility with state incentives*: Third-party-owned systems may be ineligible for or incompatible with certain state incentives such as net metering, production-based incentives, and rebates. In some cases, this is not explicitly stated in state policy and would need verification from state and local authorities and third-party developers.
- ✓ *Ownership of RECs:* The ownership of RECs is subject to negotiation under a TPO model. Potential customers should evaluate their desire keep the environmental attributes as well as the outlook of the REC market in the contract process.

THIRD-PARTY OWNERSHIP/PPA RESOURCES:

NREL: Standard Contracts for Residential and Commercial Solar https://financere.nrel.gov/finance/solar_securitization_public_capital_finance

NREL: *Solar PV Project Financing: Regulatory and Legislative Challenges for Third-Party PPA System Owners*
http://www.nrel.gov/docs/fy10osti/46723.pdf

LBNL: *Financing Nonresidential Photovoltaic Projects: Options and Implications*
https://emp.lbl.gov/sites/all/files/REPORT%20lbnl-1410e.pdf

Community/Shared Solar

Shared solar models allocate the electricity of a joinly owned or leased system to offset individual entities' electricity bills, allowing multiple energy consumers to share the benefits of a single solar array. Community or shared solar expands access to solar energy for residential and nonresidential consumers who rent, have unsuitable roofs, or cannot meet financial or other requirements for individual systems.

Feldman et al. (2015) found that shared solar has the potential to double the commercial market by offering PV to the 48% of businesses that are unable to host a PV system. The study also estimates that shared solar could represent 32% to 49% of the distributed PV market in 2020, increasing cumulative installations by 5.5 GW to 11 GW.

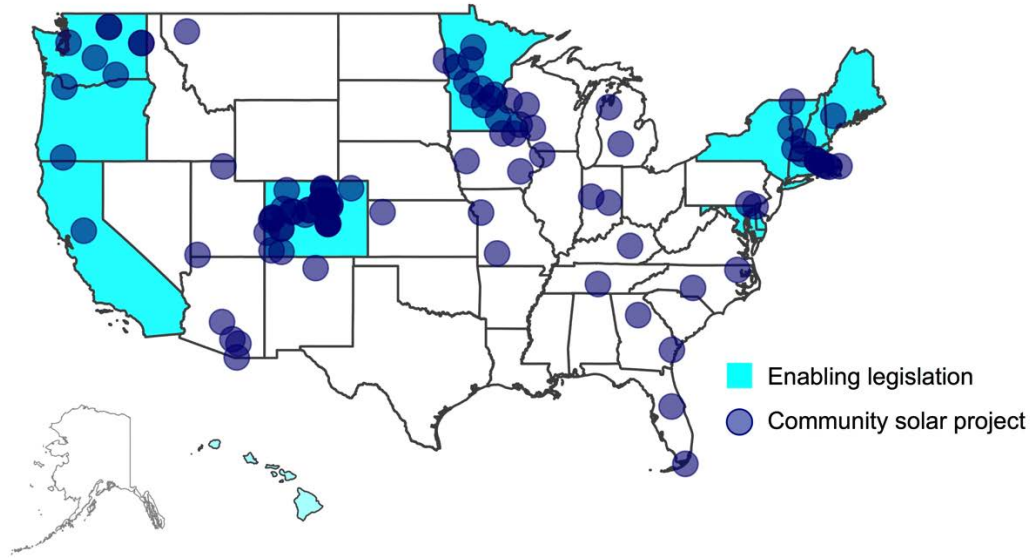
There are several models of community/shared solar, each with different options to allocate the benefits of community solar. These benefits include electricity generation, net excess generation, RECs, tax benefits, and state incentives. Below are three common models:

- **Utility-sponsored model**: Utilities own and operate a project and offer multiple retail customers the option to purchase solar electricity from a shared facility. The customers can purchase solar electricity at a fixed rate for a long term or contribute an up-front payment.
- **On-bill crediting special purpose entity model**: Commercial and/or residential entities jointly invest in a portion of a shared solar through a special purpose entity. Residents and business invest in a portion of a shared renewable project, and receive a credit on their electric bills proportional to their contribution based on how much electricity is generated by the facility.
- **Nonprofit model**: Donors contribute to a shared solar installation owned by a nonprofit organization. Donors do not directly share the benefits of the solar installation but support the nonprofit in lowering electricity bills and creating environmental benefits. The nonprofit can partner with a for-profit entity to capture the tax benefits.

A number of state-level community solar programs and policies have emerged in recent years to encourage adaption of solar by residents, nonprofits, and commercial entities. The enabling policies for community solar include **aggregate net metering**, **virtual net metering**, community solar tariff, and **guidelines for community solar development**. Community solar tariff does not use the same rate as the state's net mtering, but is especially designated for community solar projets. In some states, as in Colorado, this is set to the value of retail generation (retail price less transmission and distribution costs). Others, such as in Minnesota, use a "value of solar" tariff, which takes into account the costs and benefits of solar to the grid (Taylor 2015). The utility regulatory body and the utilities may set or approve a community-solar specific tariff for electric utilities.

These state-level enabling policies are not necessary for community solar to develop. As shown in Figure 11, numerous states have existing community solar projects even without the presence of enabling legislation. Policies also establish limits around community solar projects. Virtual net metering and net

metering policies set criteria that set capacity limits that influence the project's size. Figure 12 displays the system capacity limit of each state's policy.



Based on data from Center for Sustainable Development

Figure 11. Summary map of community solar legislation and projects

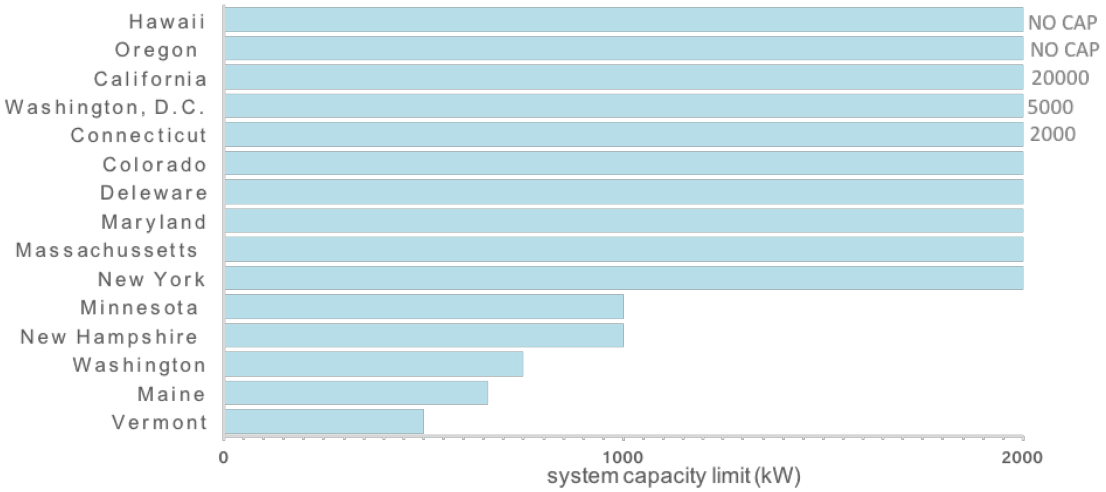


Figure 12. Summary of system capacity limits for statewide community solar policies and programs

Implications for Prospective Midmarket Customers

Community or shared solar projects make up a growing segment of midmarket solar. These projects open up opportunities for midmarket customers to participate in solar. Shared solar can provide access to solar for businesses without roof space and businesses that do not own their property. Soft costs, equipment costs, and operations and maintenance costs can be lowered through a large project compared to smaller, individual projects. A community solar project can lower financial and technical barriers to entry. Community solar projects can be constructed in optimal locations on marginal lands or unused rooftops and offer community members the opportunity to participate directly and benefit.

Many prospective midmarket customers can benefit from community solar. For example, shared solar arrays sited on apartment buildings and shopping malls can provide stable electricity bills to landlords and tenants. Retailers and municipal buildings that host shared solar systems can provide electricity and other benefits to the community.

COMMUNITY/SHARED SOLAR CHECKLIST

- ✓ *Availability of billing credit mechanisms:* Billing credit mechanisms, such as aggregate metering and virtual net metering, are not available in every jurisdiction. In this case, a special purpose entity model might not be feasible.
- ✓ *System size eligibility*: States may have limits on the PV system's capacity for the solar system, number of customers, and types of customers for community projects. Individual projects or utilities may also have additional requirements for their community projects.
- ✓ *Transferability:* The customer can ensure that the renewable shares are transferable to another party in case of planned or unplanned change in participation.
- ✓ *Ownership models and suitability of model for the consumer:* There are many options for allocating the benefits of participation in a community solar program. Customers can consider the following elements' impact on cash flow and economic feasibility when considering suitability of a particular model or structuring of the project:
    - Electricity from solar system
    - Renewable energy certificates
    - Federal tax credits and deductions
    - Accelerated depreciation
    - State and utility rebates and incentives.

COMMUNITY/SHARED SOLAR RESOURCES:

Solar Electric Power Association: *Utility Community Solar Handbook 2013* http://www.solarelectricpower.org/media/71959/solarops-community-solar-handbook.pdf

Vote Solar: Shared Renewables HQ state policy database, resources, and database http://sharedrenewables.org

Community Solar Hub**:** Community solar project database https://www.communitysolarhub.com

NREL: *Guide to Community Shared Solar: Utility, Private, and Nonprofit Project Development* http://www.nrel.gov/docs/fy12osti/54570.pdf

Interstate Renewable Energy Council: *Model Rules for Shared Renewable Energy Programs* http://www.irecusa.org/wp-content/uploads/2013/06/IREC-Model-Rules-for-Shared-Renewable-Energy-Programs-2013.pdf

U.S. Department of Energy: Federal Resources for Community Solar http://energy.gov/eere/solarpoweringamerica/federal-resources-community-solar

Financial Incentives

Solar PV projects can qualify for state- and federal-level financial incentives, or monetary benefits, which can increase the economic feasibility of the projects. These include tax measures, measures that provide direct cash incentives such as rebates and grants, and loan programs and credit enhancements.

The investment tax credit (ITC) is an important federal financial incentives supporting solar PV. The ITC allows 30% of the development cost of a solar project to be deducted from the federal income taxes for utility-scale, commercial and third-party-owned, and residential solar properties. For both commercial and residential solar, the 30% deduction is effective until the end of 2019, after which the credit level is scheduled to decrease[6] (Mai et al. 2016).

The Modified Accelerated Cost Recovery System (MACRS) is another federal tax benefit for commercial entities with renewable generation. Qualifying solar equipment is eligible for an accelerated cost recovery period of five years. If equipment claims the ITC, the owner must reduce the project's depreciable basis by one having the value of the ITC, or 15%. The owner is thus able to deduct 85% of the tax basis.

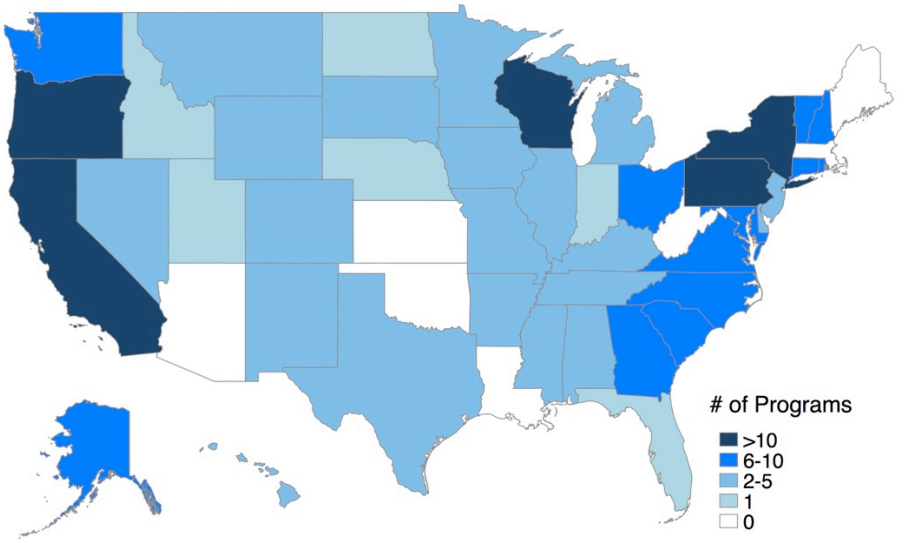
Many states offer additional financial incentives to increase the economic feasibility of solar projects. This guide categorizes state-level financial incentives into four categories: rebates/grants, loan programs, tax incentives, and performance-based incentives. Figure 13 maps the currently available number of solar incentive programs.

- **Rebates/grants:** Rebate and grant programs provide a direct up-front payment to solar investors. Rebate and grant programs may be administered at both the state and utility level. In a typical policy structure, a state develops a broad rebate/grant policy and delegates authority to the utilities for administration.
- **Loan programs:** Loan programs facilitate the financing of solar projects without making a direct payment. Loan programs may be administered at both the state and utility level. Property-Assessed

[6] The commercial-sector ITC is scheduled to decrease to 26% by the end of 2020, 22% by the end of 2021, and 10% by the end of 2022; the residential ITC is scheduled to decrease to 0% by the end of 2020. Projects starting construction by January 1, 2022 and commissioned by January 1, 2024 are eligible for the tax credit incentive.

Clean Energy (PACE) financing is a special form of loan program that allows local governments to provide up-front funds for energy improvements on residential and commercial properties, including solar projects. Project owners pay down PACE-financed investments through property assessments (additional items on property taxes) over 10 to 20 years.

- **Tax incentives:** Many states exempt solar project investments from property, sales, and/or income taxes. Some states also provide tax credits for solar project investments.
- **Performance-based incentives:** Performance-based incentives operate similar to rebates/grants except that the payment amount depends on the output of the solar system.



Based on data from DSIRE

Figure 13. Summary map of state-level financial incentive for solar PV by number of programs (as of June 2016)

Implications for Prospective Midmarket Customers

Financial incentives directly influence the economics of a solar project. Rebates or grants and tax incentives reduce the capital investment of solar projects. Loan programs improve access to low-cost capital. Performance-based incentives provide an additional long-term revenue stream. Project planners can incorporate all applicable financial incentives into the economic analysis of a proposed project.

Financial incentives can determine the most lucrative capital structure for finance and project ownership. Some rebates/grants are developed for specific customer segments. For example, a grant program for solar deployment at schools may incentivize some schools to pursue system ownership rather than leasing a system. Furthermore, tax incentives can generally only be capitalized by entities with sufficient tax appetite. Nonprofits and public entities are often largely excluded from financial incentives that require a substantial tax appetite. Prospective solar customers with small tax appetites can benefit by shifting system ownership to an entity with a substantial tax appetite (Feldman and Lowder 2015). The prospective customer can then negotiate so that the system owner passes some of the tax benefits through to the customer. Incentive pass-through from a system owner to a customer may be limited by state policies that characterize such agreements as a utility-to-customer.

STATE FINANCIAL INCENTIVES CHECKLIST

- ✓ *System eligibility*: State financial incentives are often specific to a particular segment of the market, with different levels of incentive, different system size caps, and different total funds and/or aggregate capacity. The customer can identify if the solar PV system fits within these parameters or if any of these parameters can influence the design of the solar PV project.
- ✓ *State and local tax considerations:* Consumers and developers can determine which taxes will apply and how to allocate costs.
    - Net income tax: Revenue generated by a project will be subject to state and federal income taxes. Some states offer income tax credits in addition to the federal ITC. Other financial incentives, such as rebates and grants, can reduce the taxpayer's basis for calculating the ITC, unless the incentives are considered taxable income to the taxpayer. There is some uncertainty regarding the applicability of the residential tax credit to offsite solar models. If the project participants consist of a combination of residential and nonresidential customers, allocation of tax credits could be clearly delineated and defined.
    - *Sales and use tax:* Most state sales taxes apply to solar equipment rather than the sale and use of electricity. Some states offer sales tax exemptions for solar facilities. The customer may check to see if participants can benefit from the tax exemptions under a community or shared solar program.
    - *Property tax:* Assessment values for property tax come from either a local assessor or state authority. Many states offer property tax reductions or exemptions for solar facilities.
- ✓ *REC ownership*: Participation in certain state incentive programs will transfer the ownership of RECs from the customer to another entity.

FINANCIAL INCENTIVES RESOURCES:

Solar Outreach Partnership: Understanding Sales Tax Incentives for Solar Energy Systems—A factsheet for Customers, Industry, and Local Governments.
http://solaroutreach.org/wp-content/uploads/2015/03/SalesTaxIncentivesFactsheet_Final.pdf

Solar-Estimate: Calculator that estimates the cost, size, and incentives available to a solar system. It has a summary of current solar and wind incentives and rebates available within each state.
http://www.solar-estimate.org/?page=solar-incentives

Department of Energy: Federal Investment Tax Credit (business)
http://energy.gov/savings/business-energy-investment-tax-credit-itc

Policy Summary

Part 1 of this guide captures a wide range of policy mandates and incentives for solar PV deployment, with a special emphasis on the impact for the midscale segment of the market. Although not exhaustive, these policy areas build a framework from which potential customers can evaluate the policies that can shape their decisions in investing in solar PV.

Part 2 of this guide provides specific details of state programs and incentives to help potential midmarket customers effectively use these policies to make an informed decision.

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Appendix. Existing Solar Policy Resources

Web-Based Resources

Advanced Energy Legislation Tracker (AEL Tracker):
The AEL tracker is a database for selecting advanced energy legislation from across all 50 states. It provides current legislative language, recent actions, bill sponsor information, and policy trend analyses.
http://www.aeltracker.org/

Database of State Incentives for Renewables & Efficiency (DSIRE):
DSIRE is a comprehensive database of incentives and policies that support renewable energy and energy efficiency in the United States.
http://www.dsireusa.org/

Freeing the Grid
Freeing the Grid assigns states grades for best practices in net metering and interconnection. It serves as a good source for capacity caps in interconnection and net metering policies.
http://freeingthegrid.org/

Solar-Estimate:
Solar-Estimate is an online calculator that shows an estimate of solar system cost as well as rebates and incentives available based on input address and utility.
http://www.solar-estimate.org/?page=solar-calculator

State & Local Energy Data (SLED):
SLED provides summary reports for electric generation, fuel source data and costs, clean energy policies, regulations, and financial incentives, and renewable energy resource potential based on user-defined geographic location inputs.
http://apps1.eere.energy.gov/sled/#/

State Policy Opportunity Tracker (SPOT):
SPOT synthesizes existing information related to state-level 38 clean energy policies. It serves as a planning tool with downloadable policy briefs, links to source information, and links to organizations that specialize in each policy area.
http://spotforcleanenergy.org/

State Solar Policy, Solar Energy Industries Association (SEIA):
SEIA's website provides links to state solar policy resources for all 50 states.
http://www.seia.org/policy/state-solar-policy

Reports

***Distributed Generation: An Overview of Recent Policy and Market Developments.* American Public Power Association (2013).**
High-level background information of solar policies.

***Renewable Energy in the 50 States* (series). ACORE (2014-2015).**
Four separate reports (to date) for four separate regions. In addition to policy summaries provides data on electricity generation by source, renewable energy capacity, renewable transportation, and private sector investment. State-by-state appendices break down five policies: RPS, net metering, financial incentives, Clean Power Plan reduction targets, and RTO/ISO.

***The 50 States of Solar*. NC Clean Energy Technology Center (2015).**
This quarterly report provides high-level trends with an emphasis on recent developments in net metering. *The 50 States of Solar* covers both state policies and utility-led rate requests that affect PV customers.

Part 2. Midmarket Solar PV State Policy Inventory

Part 2 of this guide provides profiles of solar and renewable energy policy in the 50 U.S. states and Washington, D.C. Each state policy profile is organized in the same format to provide consistent information.

Structure of the Profiles

The following policy areas are included in each profile:

- State RPS or renewable energy goal, including tracking system and carve-outs
- Net metering policy
- State interconnection standards or guidelines
- Third-party ownership policy
- Community solar policies and/or programs
- State financial incentive programs
- Utility incentive programs, selected for midscale PV.

Each profile also includes a list of resources for these policy areas, enabling the user to refer to the source for more detailed information on specific policies.

To help midmarket stakeholders more easily assess these policies, the capacity limits are highlighted when appropriate to illustrate their applications for midmarket solar, roughly defined as 50 kW to 2 MW. For example, if the system size limit for net metering is **20 kW**, the capacity is highlighted in red to indicate midscale systems do not qualify for the incentive. If the system size limit for net metering is **2 MW**, the capacity is highlighted in green to indicate this policy is applicable to midscale solar.

The information included in these profiles reflects active policies and programs as of August 30, 2016. The policy environment is dynamic, which means information provided in this inventory may not reflect the current status of the policies. To gather the most accurate information, users of this guide are encouraged to 1) use the state-specific resources provided at the end of each profile to obtain more detailed and up-to-date information, and 2) check with state and local authorities, utilities, and other local organizations for specific information related to the solar project or property.

Notes and Sources

Contents of state and local RPS, net metering policy, interconnection standards or guidelines, third-party ownership policy, and state and utility financial incentive programs are based on information provided by the Database of State Incentives for Renewables and Efficiency (DSIRE), supplemented by information from each state's RPS legislation or regulatory agency.

REC tracking system information is based on information provided by the U.S. Department of Energy Green Power Markets REC National REC Tracking Systems, which is accessible through http://apps3.eere.energy.gov/greenpower/markets/certificates.shtml?page=3

Community solar policies and program information reference policies from Shared Renewables HQ, which is accessible through http://www.sharedrenewables.org/community-energy-projects. These are supplemented by information from state and local organizations, state legislation, utilities, and the regulatory authority.

The utility incentive programs listed in each state profile is not exhaustive and include only programs that are applicable to the midscale segment. Users of this guide should check with specific programs for availability status. While a number of localities offer financial incentive programs, this guide focuses on the state-level programs.

Alabama

Renewable Portfolio Standard: None

Carve-out: None
Tracking system: No formally adopted tracking system

Alabama does not have statewide policies such as net metering, interconnection, or community solar programs to support midscale solar. Electric customers in the Tennessee Valley Authority (TVA) service territory may be eligible for utility incentives for midscale solar.

NET METERING

Alabama does not have net metering policy.

INTERCONNECTION

Alabama does not have standardized interconnection policy.

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are not allowed in Alabama.

COMMUNITY SOLAR

Alabama currently does not have statewide community solar policies or programs.

STATE INCENTIVES

Program	Administrator	Incentive
Local Government Energy Loan Program	Department of Economic and Community Affairs	The program offers zero-interest loans to local governments, K-12 schools, public colleges and public universities for solar systems. Eligible public entities may borrow up to $350,000 per project.

UTILITY INCENTIVES

Prospective Alabama customers in the TVA service territory may be eligible for TVA solar incentives.

Utility Program	Incentives	Eligibility
TVA: Green Power Providers program	First 10 years: 0.02/kWh above the retail rate; an additional 10 years: retail rate	**<50 kW**
TVA: Renewable Standard Offer program	10-, 15-, or 20-year contracts at a rate that escalates 5% annually	**50 kW** to **20 MW**
TVA: Solar Solutions Initiative	Additional $0.04/kWh for the first 10 years	**50 kW** to **1 MW** Total capacity: 20 MW

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Programs and incentives	Alabama Department of Economic and Community Affairs: Local Government Energy Loan Program	http://www.adeca.alabama.gov/Divisions/energy/Pages/default.aspx
	Tennessee Valley Authority: Renewable Energy Solutions	https://www.tva.gov/Energy/Renewable-Energy-Solutions

Alaska

Renewable Portfolio Standard: None

Carve-out: None
Tracking system: No formally adopted tracking system

Alaska's net metering program only applies to small systems less than 25 kW in capacity. Mid-market customers may be eligible for low-interest loans from the Alaska Energy Authority. Public benefit projects are eligible for Alaska Energy Authority grants.

NET METERING

Regulatory Commission of Alaska (RCA)'s net metering regulations mandate all utilities with more than 5 million kWh of retail sales to offer net metering to retail customers. Utilities that generate 100% of their electricity from renewable energy or other low-impact sources are exempt from the net metering requirement.

Utilities are prohibited from charging net-metered customers any additional standby, capacity, interconnection, or other charges unless otherwise approved by the RCA. This safe harbor language does not explicitly extend to systems **>25 kW**.

System size limit: **25 kW**

Aggregate cap: 1.5% of average retail demand

Credit: Non-firm power rate

RECs: Not addressed

Meter aggregation: Not addressed

INTERCONNECTION

The Regulatory Commission issued interconnection guidelines for net-metered customers. The Commission has to approve interconnection charges to customer-generators. Utilities subject to Alaska's net metering regulations must have a simple interconnection application.

System size limit: **25 kW**

Liability insurance: Utilities may require customers to have liability insurance if the insurance is deemed easily available at a reasonable price

External disconnect switch: Not required

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are not allowed in Alaska.

COMMUNITY SOLAR

There are currently no statewide community solar policies or programs in Alaska. Utilities and developers may offer community solar programs.

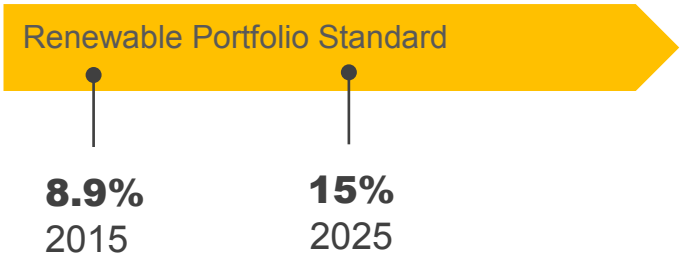
STATE INCENTIVES

Program	Administrator	Incentive
Renewable Energy Grant	Alaska Energy Authority	Qualified solar projects operated for public benefit are eligible for grants. The AEA makes recommendations to the Alaska state legislature, which makes funding decisions.

UTILITY INCENTIVES

Check with local utilities for midscale solar incentives.

Arizona



Carve-out: 4.5% of total electricity sales must come from distributed generation
Tracking system: Nevada Tracks Renewable Energy Credits (NVTREC)

Investor-owned utilities (IOUs) and electric power cooperatives in Arizona, excluding distribution companies with more than half of their customers outside of the state, are subject to the Renewable Energy Standard

Arizona has a net metering program with no size limit but is specific to the customer's load. Arizona solar customers are eligible for an up-front incentive through the state's solar and wind tax credit. Large systems are eligible for additional production-based incentives. Several Arizona utilities also offer rebate programs that midscale solar are eligible for.

NET METERING

Net metering is available to customers of IOUs and electric cooperatives in Arizona. The state's net metering requirement does not apply to the Salt River Project (SRP) service territory or municipal utilities. Salt River Project has established a separate net metering program capped at **300 kW**. The SRP program also compensates at the retail rate.

The Arizona Public Service (APS) Company charges distributed solar system owners a fixed charge demand charge of $0.70 kW/month. APS is seeking regulatory approval to raise the demand charge to $3.00 kW/month. Customers in SRP's net metering program are also subject to demand charges based on the customer's maximum monthly energy use. Other Arizona utilities have proposed similar charges for solar customers.

System size limit: 125% of customer's total connected load

Aggregate cap: Not addressed

Credit: Net excess generation is credited at the retail rate

RECs: Customers retain ownership of RECs unless participating in a utility incentive program

Meter aggregation: Not addressed

INTERCONNECTION

Arizona currently does not have statewide interconnection standards for distributed generation, but has a set of guidelines. The state's utilities, including SRP, Tucson Electric Power (TEP) and APS have developed separate interconnection agreements and procedures for distributed generation.

System size limit: Varies by utility

Liability insurance: Varies by utility

External disconnect switch: Varies by utility

THIRD PARTY OWNERSHIP

Third-party power purchase agreements (PPAs) for governments, schools, and other non-profit institutions are exempt from Arizona Corporation Commission regulation.

COMMUNITY SOLAR

There are currently no statewide community solar policies or programs in Arizona. Individual utilities and third-party develoeprs offer community solar programs.

STATE INCENTIVES

Program	Administrator	Incentive
Nonresidential Solar and Wind Tax Credit	Department of Revenue	Non-residential solar systems are eligible for a corporate or personal tax credit worth 10% the value of the system, capped at $25,000 per building or $50,000 in credits per non-residential customer. The tax credit is due to expire on December 31, 2018.
Renewable Energy Production Tax Credit	Department of Revenue	Systems of 5 MW or larger are eligible for a production-based tax credit for the first 10 years of system operation, beginning at $0.04/kWh and declining to $0.01/kWh in the tenth year.
Renewable Energy Tax Credit for Manufacturers	Department of Revenue	Systems larger than 20 MW used for on-site consumption at manufacturing and international operations facilities are eligible for an additional tax credit worth $5 million per year for up to five years (subject to additional requirements).

UTILITY INCENTIVES

Utility	Incentive	Limitations
Mohave Electric Cooperative	$0.20/W rebate	Capped at $5,000; **<50 kW**
Sulphur Springs Valley Electric Cooperative	$0.25/W rebate	Capped at $5,000; must qualify as a net meter account

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Renewable Energy Standard and Tariff	http://www.azcc.gov/divisions/utilities/electric/environmental.asp
Net metering and interconnection	Arizona Public Service: Renewable Plan Options	https://www.aps.com/en/residential/accountservices/serviceplans/Pages/renewable-energy-plans.aspx
	Arizona Administrative Code R14-2-2301: See Article 23 for Net Metering	http://apps.azsos.gov/public_services/Title_14/14-02.pdf
	Arizona Public Service: Interconnection	https://www.aps.com/en/globalservices/installers/Pages/resources-for-green-energy-installers.aspx?src=dg
Programs and incentives	Arizona Commerce Authority: Arizona Incentives	http://www.azcommerce.com/incentives/commercialindustrial-solar
	Duncan Valley Electric Cooperative: SunWatts	http://www.dvec.org/content/sunwatts
	Mohave Electric's SunWatts Renewable Energy Incentive Program	http://www.mohaveelectric.com/content/sunwatts-renewable-energy-incentive-program
	Sulphur Springs Valley Electric: Cooperative Renewable Energy Program	http://www.ssvec.org/programs-vendors/renewable-energy-program/
Other	Arizona Solar Center	http://www.azsolarcenter.org/

Arkansas

Renewable Portfolio Standard: None

Carve-out: None
Tracking system: Midwest Renewable Energy Tracking System (M-RETS)

Arkansas's net metering is capped at 300 kW, which allows some mid-market customers to take advantage of net excess generation but limits customers with a larger demand. In addition, mid-market customers may be eligible for low-interest loans from the Arkansas Energy Office.

NET METERING

Arkansas Public Service Commission (PSC) established net-metering rules for IOUs and cooperative utilities in 2001 and approved new net metering tariffs for all utilities under PSC's jurisdiction in November 2013. PSC can allow system capacity larger than **300 kW**. There is no limit for the total capacity of all net-metered systems.

System size limit: **25 kW** for residential; **300 kW** for commercial

Aggregate cap: Not specified

Credit: Net excess generation is credited at the retail rate

RECs: Customers retain ownership of renewable energy certificates (RECs)

Meter aggregation: Meter aggregation is allowed

INTERCONNECTION

Section 3 of Arkansas net-metering rules (Order No. 02-046-R) applies to the interconnection of net-metered facilities of IOUs and cooperative utilities.

System size limit: **25 kW** for residential; **300 kW** for commercial

Liability insurance: Not required

External disconnect switch: Required with the exception of certain inverter-based systems

THIRD PARTY OWNERSHIP

Third-party power purchase agreements (PPAs) are not allowed in Arkansas.

COMMUNITY SOLAR

Arkansas permits net metering aggregation, allowing aggregated meters to be located on separate premises in order to take advantage of renewable generation's location. There are currently no statewide community solar policies or programs in Arkansas. Third-party developers and utilities may offer community solar programs.

STATE INCENTIVE PROGRAMS

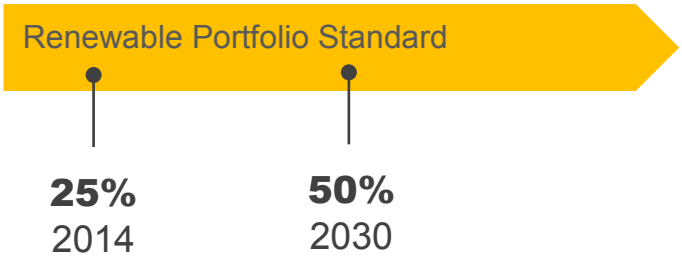
Program	Administrator	Incentive
Arkansas Energy Technology Loans for Green Technology	Arkansas Energy Office	The program offers low-interest loans for investments in non-residential solar. Interest rates vary between 1 and 2%, depending on loan term and the financial strength of the borrower. More information is available from the Arkansas Energy Office

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and interconnection	Arkansas Public Service Commission: Net metering rules	http://www.apscservices.info/Rules/net_metering_rules.pdf
	Electric Cooperatives of Arkansas (General Interconnection)	http://www.aecc.com/generation-facilities/general-interconnection
Community Solar	Arkansas Public Service Commission: Rules Concerning Meter Aggregation and Combined Billing	https://www.mea.coop/member-services/net-metering/
Programs and incentives	The Arkansas Energy Technology Loan	http://www.arkansasenergy.org/incentives-programs/arkansas-energy-technology-loan-program
	Arkansas renewables and efficiency programs and policies	http://programs.dsireusa.org/system/program?state=AR

California



Carve-out: None
Tracking system: Western Renewable Energy Generation Information System (WREGIS)

California's Renewables Portfolio Standard (RPS) requires Investor-Owned Utilities (IOUs) and Publicly Owned Municipal Utilities (POUs) that 50% of their retail sales must come from renewable energy by 2030.

The state's "Go Solar California" campaign is in the final stages of a 10-year program. The new successor net metering tariff will increase the cost of interconnection and decrease the income generated from net metering. At least 20 utilities still offer Go Solar California rebates, although rebates have declined significantly by program design and several utility rebate programs have expired. California requires IOUs and large public utilities to offer to buy solar output through a Renewable Market Adjusting Tariff.

NET METERING

California's net-metering regulation applies to all utilities except for utilities with over 750,000 customers that also provide water service. In January 2016, The California Public Utilities Commission (CPUC) established a successor tariff to its current net metering scheme. The new tariff allows systems larger than 1 MW to become eligible for net metering programs, provided they pay all interconnection fees and upgrade costs deemed necessary by the utility.

The successor net metering tariff, effective either on July 1, 2017 or upon the utility reaching the 5% aggregate customer peak demand limit, will require investor-owned utility customers to pay an interconnection fee ($75-$150), pay all "non-bypassable" charges for all electricity consumed from the grid (approximately $0.02-0.03/kWh), and for residential customers to transfer to a time-of-use rate.

System size limit: **1 MW** (5 MW for systems under the bill credit transfer program)

Under successor tariff: No system size cap limit

Aggregate cap: 5% of the utility's aggregate customer peak demand for investor-owned utilities

Credit: Retail rates; Under successor tariff: residential customers move to time-of-use rates.

RECs: Customers retain ownership of RECs consumed on site; RECs generated by electricity receiving net metering credits are transferred to the utility

Meter aggregation: CPUC allows virtual net metering and net energy metering aggregation

INTERCONNECTION

CPUC approved a proposed settlement in 2012 to redesign Rule 21. California's Rule 21 applies to systems connecting to an IOU's distribution grid, non-export facilities connecting to an IOU's transmission grid and all net-metered systems within an IOU's service territory. All systems connecting to the transmission grid must apply to the California Independent System Operator for interconnection permission. Utilities can make interconnection requirements for systems connecting to the grid of a municipal or cooperative utility.

Eligible Systems	Type of Interconnection
All non-exporting systems or net metering facility	Fast track
Exporting facility ≤3MW on a 12 kV or higher voltage interconnection point	Fast track
All other systems	Detailed study

System size limit: Not specified

Liability insurance: Varies by system size, type, and CPUC levels

External disconnect switch: Varies by utility and system size

THIRD PARTY OWNERSHIP

Third party solar Power Purchase Agreements (PPAs) are allowed in California.

COMMUNITY SOLAR

California's Green Tariff Shared Renewables program requires California's three IOUs to ensure sufficient community solar capacity to meet up to 600 MW of customer demand. The program consists of two components: the green tariff, and the enhanced community renewables (ECR) component. Under the green tariff, customers may choose to pay a premium on their electricity bill to participate in a community solar project. Initial estimates of the premium are $0.02-$0.03/kWh. Under the ECR, customers may purchase an ownership stake in a third-party led community solar project. ECR project developers must work with the IOU to determine the appropriate ECR tariff rate for subscriber compensation. The tariff rate must include the avoided cost of generation.

Utilities and third-party developers offer community solar programs in the state.

STATE INCENTIVE PROGRAMS

Program	Administrator	Incentive
Go Solar California Campaign	California PUC, California Energy Commission	It is the state's primary solar PV rebate program. The program provided funding for utility-level rebate programs for 10 years. The campaign is implemented at the utility level
Partial Sales and Use Tax Exemption for Agricultural Solar Power Facilities	California State Board of Equalization	PV systems used to provide power to farm equipment are eligible for a partial exemption for state sales and use taxes
Property Assessed Clean Energy (PACE) Financing	California Energy Commission	PACE allows property owners to repay loans for solar PV projects through a special assessment on the property over a specified loan term. California implemented a PACE Reserve program in 2010 to lower program costs
Renewable Market Adjusting Tariff (ReMAT)	California PUC	The state's IOUs and public utilities with 75,000 or more customers are required to offer to purchase customer-generated renewable energy. Systems smaller than 3 MW are eligible for 10-, 15-, or 20-year contracts. Interested system owners must submit a Program Participation Request and accept or reject the utility's proposed ReMAT price (if offered). Program participants transfer all RECs to the utility and are not eligible for other state incentives
School Facility Program Modernization Grants	Department of General Services	Local school districts with permanent buildings that are 25 years or older and schools with re-locatable buildings that are 20 years or older may be eligible for modernization grants. Modernization grants can be used for several purposes, including investments in electrical systems. Modernization grants require a 40% local contribution

UTILITY INCENTIVE PROGRAMS

In 2007, the CPUC and the California Energy Commission launched the "Go Solar California" campaign. CPUC designed the rebate programs to decline through "steps" as utilities reached certain capacity thresholds. For example, the up-front rebate was designed to decline from $2.50/W in the second step to $0.20/W in the final step of the program for the state's IOUs. As of the release of this report, the state's IOUs had completed all program steps for most customer classes, and only commercial customers in the SDG&E service territory remained eligible for rebates.

The table below summarizes the remaining rebates available as of the time of this research. However, customers should check with their utility to confirm the current status of Go Solar Campaign rebate availability. Utility incentive programs for small systems (<50 kW) only are not included below.

Utility	Incentive	Limitations
Anaheim Public Utilities	$1.10/W	Capped at $3,125; **<30 kW**
	$0.11/kWh	**30 kW** to **1 MW**; First five years of production
Azusa Light & Water(expires 12/31/16)	$0.51/W	Capped at 50% of system cost
City of Healdsburg	$0.59/W	Capped at $11,800
City of Lompoc Utilities	$1.00/W	Capped at $50,000 or 50% of system cost; no larger than customers average load over past three years
City of Palo Alto Utilities	$1.20/W	Small customers **<30 kW**
	$0.15/kWh	First five years of production ; small customers **>30 kW**
Imperial Irrigation District	$0.50/W	May be reduced based on expected performance; **<30 kW**
	$0.05/kWh	Capped at $110,000/year; **30 kW** to **300 kW**
	$0.05/kWh	Capped at $110,000/year, rate is prorated according to ratio of system size to **1 MW**; **300 kW** to **1 MW**
Los Angeles Department of Water and Power	$0.70/W ($1.45/W government and non-profit)	Capped at 50% of project cost for commercial systems, or 75% of project costs for government and non-profits; **<5 MW** (expires 12/31/17)
Lassen Municipal Utility District	$1.81/W	Capped at $19,000 or 50% of system cost; **<50 kW** (expires 01/01/18)
Lodi Electric Utility	$1.68/W	Capped at $40,000

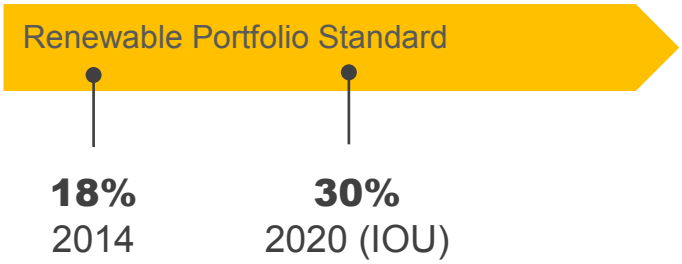
Merced Irrigation District	$1.00/W	Capped at $25,000
	$0.10/kWh	First five years of production; **30 kW** to **1 MW**
Moreno Valley Electric Utility	$1.00/W	Capped at $50,000 or 50% of system cost; **<30 kW**
	$0.04/kWh	First four years of production; **30 kW** to **500 kW**
	Case-by-case basis	**500 kW** to **1 MW**
Pasadena Water & Power	$0.45/W ($0.90/W for tax-exempt entities)	**<30 kW**
	$0.144/kWh ($0.288/kWh for tax-exempt entities)	**30 kW** to **1 MW**
Plumas Sierra Rural Electric Cooperative	$1.68/W	Capped at $12,000 for small commercial and non-profits, capped at $20,000 for large commercial and industrial; **<25 kW**
Riverside Public Utilities	$0.50/W	Capped at $50,000. Leased systems and PPAs are ineligible
Roseville Electric	$0.24/W	**<10 kW**
	$0.04/kWh	First five years of production; **10 kW** to **100 kW**
Silicon Valley Power	$0.90/W	**<50 kW**
	$0.12/kWh	First five years of production; **50 kW** to **1 MW**
Sacramento Municipal Utility District	$0.20/W	Capped at $200,000
Truckee Donner Public Utility District	$2.55/W	Capped at $12,750; **<1 MW** (expires 12/31/16)
Ukiah Utilities	$1.40/W	Capped at $25,000; **<1 MW**

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	California Public Utilities Commission	http://www.cpuc.ca.gov/RPS_Homepage/
	California Energy Commission	http://www.energy.ca.gov/portfolio/
Net metering and interconnection	California Public Utilities Commission: California Net Energy Metering	http://www.cpuc.ca.gov/General.aspx?id=3800
	California Public Utilities Commission: Net Metering Successor Tariff	http://www.cpuc.ca.gov/General.aspx?id=3934
	California Public Utilities Commission: Electric Rule 21 distributed generation interconnection	http://www.cpuc.ca.gov/General.aspx?id=3962
Community solar	Pacific Gas & Electric: Solar Choice Community Solar Project	https://www.pge.com/en_US/residential/solar-and-vehicles/options/solar/solar-choice/solar-choice.page?WT.mc_id=Vanity_solarchoice
	Senate Bill No. 43 Electricity: Green Tariff Shared Renewables Program	http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB43
Programs and incentives	California Public Utilities Commission: Distributed Generation Programs and Policies	http://www.cpuc.ca.gov/general.aspx?id=3788
	Center for Sustainable Energy: Property Assessed Clean Energy (PACE) Programs	http://energycenter.org/policy/property-assessed-clean-energy-pace
	Go Solar California	http://www.gosolarcalifornia.ca.gov/

Colorado



Carve-out: 3% of total retail sales must come from distributed generation
Tracking system: Western Renewable Energy Generation Information System (WREGIS)

Colorado's renewable portfolio standard (RPS) requires its retail utilities to have a percentage of their electricity sales from renewables. By 2020, the required percentage of renewable electricity is as set as 30% for investor-owned utilities (IOUs), 20% for electric cooperatives serving 100,000 or more meters, 10% for electric cooperatives serving fewer than 100,000 meters and municipal utilities serving more than 40,000 customers.

Colorado allows renewable energy customers to net meter solar systems up to 120% of the IOU customer's average annual consumption. It implemented one of the first statewide community solar policies in the country with the Solar Gardens Act. It offers state incentives in the form of low interest loans and sales and use tax exemptions. Colorado utilities Black Hills Energy, La Plata Electric Association and Xcel Energy offer rebates to their renewable energy customers.

NET METERING

Net metering applies to customer-generators for retail renewable distributed generation. All net-metered utilities are required to provide net metering service at non-discriminatory rates to customer-generators. Systems **>10 kW** must use a second meter to measure the output.

System size limit: IOU customers 120% of customer's average annual consumption; **25 kW** for municipality and co-op customers; **≤50 kW** for Aspen Electric and Longmont Power & Communications

Aggregate cap: Aggregate capacity limit is not specified in Colorado

Credit: Net excess generation is credited at retail price

RECs: Customers retain ownership of RECs

Meter aggregation: Meter aggregation is allowed for IOU customers in Colorado

INTERCONNECTION

Colorado PUC's interconnection standards apply to IOUs with over 40,000 customers and all electric cooperatives. Municipal utilities with over 5,000 customers are required to adopt similar interconnection rules. Colorado has three levels (based on system complexity) of interconnection standards for systems up to 10 MW.

Eligible Systems	Type of Interconnection
Inverter-based systems **≤10 kW**	Level 1 Interconnection
Systems **≤2 MW**	Level 2 Interconnection (may require supplemental review)
All other systems: **≤10 MW**	Level 3 Interconnection (may require project scope, feasibility, impact studies)

System size limit: 10 MW

Liability insurance: Required coverage of $300,000 for ≤10 MW, $1,000,000 for ≤500 MW, $2,000,000 for ≤2 MW, and case-by-case determination for ≤10 MW. Electric cooperatives and municipal utilities can reduce or waive any insurance requirements that apply to IOUs

External disconnect switch: Not addressed

THIRD PARTY OWNERSHIP

Third-party system owners are exempt from the Colorado Public Utilities Commission regulation if the system does not generate more than 120% of the customer's average annual consumption.

COMMUNITY SOLAR

Colorado's Community Solar Gardens Act allows the development of "community solar gardens" in the service territories of IOUs and electric cooperatives, who may use community solar output for state RPS compliance. Community solar gardens may be **up to 2 MW** and must have at least 10 subscribers. Colorado community solar garden subscribers are credited for their share of the system's output at the retail rate less a PUC-approved charge for the utility's administration costs. Any portion of a community solar garden owned by residential or tax-exempt entities is exempt from property taxation. At least 5% of an IOU's purchases from community solar must serve low-income subscribers.

STATE INCENTIVES

Program	Administrator	Incentive
Sales and use tax exemption	Colorado Department of Revenue	Solar PV equipment are eligible for100% exemption from state sales and use tax. From 2017 on, storage equipment will be exempt from state sales and use tax.
Energy Smart Colorado	Energy Smart Colorado	The Energy Smart Colorado program provides low-interest loans of up to $25,000 to finance solar PV projects in Roaring Fork Valley and Eagle, Gunnison, Lake, and Summit Counties. The program uses funds from a DOE Energy Efficiency and Conservation Block Grant.
Renewable Energy and Energy Efficiency for Schools Loan	Colorado Energy Office	Colorado school districts are eligible for up to $1,000,000 in low-interest loans for renewable energy and energy efficiency measures, including solar PV
Colorado Commercial Property Assessed Clean Energy (PACE)	Local authorities	Colorado has authorized local governments to provide PACE financing. PACE allows property owners to repay loans for solar PV projects through a special assessment on the property over a specified loan term.

UTILITY INCENTIVES

Utility Program	Incentive	Eligibility
Black Hills Energy	$0.05/kWh rebate	10 kW to 30 kW
	$0.075/kWh rebate	30 kW to 100 kW
La Plata Electric Association	$0.10/W rebate	<10 kW
	$0.04491/kWh rebate	>10 kW; first 10 years of production
Xcel Energy	$0.02/kWh rebate	<25 kW; first 10 years of production
	$0.05/kWh rebate	25 kW to 500 kW; first 10 years of production

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Renewable Energy Standard	https://www.colorado.gov/pacific/energyoffice/renewable-energy-standard
Net Metering and Interconnection	Colorado Solar Energy Industries Association	http://coseia.org/policy-and-legislative-information/public-utilities-commission/
	Colorado PUC Electric Rules	https://drive.google.com/file/d/0B8qvU2knU8BkZ2JoY3EzY2RJeUk/view
Community Solar	Colorado Community Solar Gardens Act	http://www.solargardens.org/legislation-news-2/colorado-community-solar-gardens-act/
	Colorado Energy Office: Community Solar	https://www.colorado.gov/pacific/energyoffice/community-solar
Programs and Incentives	Energy Smart Colorado	http://aspencore.org/programs/energy-smart-colorado/
	Renewable Energy and Energy Efficiency for Schools Loan	https://www.colorado.gov/pacific/energyoffice/reees-loan-program

	Colorado Commercial Property Assessed Clean Energy	https://www.colorado.gov/pacific/energyoffice/colorado-c-pace
	Xcel Energy: Solar Rewards Community	https://www.xcelenergy.com/programs_and_rebates/residential_programs_and_rebates/renewable_energy_options_residential/solar/available_solar_options/community-based_solar
	Department of Revenue: Sales and Use Tax Exemption for Renewable Energy Equipment	https://www.colorado.gov/pacific/sites/default/files/Sales83.pdf

Connecticut

Renewable Portfolio Standard

27%
2020

Carve-out: None
Tracking system: New England Power Pool Generation Information System (NEPOOL-GIS)

All electric electricity providers are subject to the RPS in Connecticut. Resources are divided into three classes. Class I, which includes solar, is scheduled to reach 20% by 2020.

Connecticut requires the state's investor-owned utilities (IOUs) to buy "Zero Emission Renewable Energy Credits" or ZRECs from large systems. Mid-market customers may be eligible for incentives, including PACE financing, from the Connecticut Clean Energy Fund. Connecticut's net metering policy allows for up to 2 MW of capacity, allowing for a full spectrum of midscale solar projects.

NET METERING

Connecticut's Electric Distribution Companies (United Illuminating and Eversource) offer net metering for electricity generated from Class I renewable energy through a billing credit.

System size limit: 2MW

Aggregate cap: Not specified

Credit: Net excess generation is credited at avoided cost of wholesale power

RECs: Customers retain ownership of renewable energy certificate (RECs)

Meter aggregation: Virtual net metering allowed for state, municipal, and agricultural customers for up to 3 MW. Other customers may participate in virtual net metering as a "beneficial account" under a state, municipal, or agricultural host under certain conditions. Net excess generation from virtual net metering facilities is credited at the retail rate plus a declining percentage of the transmission and distribution charges billed to beneficial accounts.

INTERCONNECTION

Connecticut follows Federal Energy Regulatory Commission (FERC) Orders 792 and 792-A for small generator interconnection standards and procedures:

Eligible Systems	Type of Interconnection
Inverter-based systems **≤10 kW**	Special process, Application fees:$100
Systems **≤2 MW**	Fast-track process, Application fees: $500
All other systems: **≤20 MW**	Study process which includes “additional process steps" for generators greater than 5 MW, Application fees: $1000, Additional study fees

System size limit: **20 MW**

Liability insurance: Varies by system size and/or type; levels established by the Public Utilities Regulatory Authority

External disconnect switch: Required

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) is allowed in Connecticut.

COMMUNITY SOLAR

In 2015, Connecticut launched the Shared Clean Energy Facility Pilot program. The pilot program allows **<6 MW** of projects in Investor Owned Utilities (IOU) service territories. Virtual net metering permits up to 3 MW of capacity.

STATE INCENTIVE PROGRAMS

Program	Administrator	Incentive
Connecticut Clean Energy Fund (CCEF)	Connecticut Green Bank	The Connecticut Green Bank has broad flexibility to use the CCEF to make green energy more accessible and affordable. Non-residential systems are eligible for Commercial Property Assessed Clean Energy (C-PACE) financing through the CCEF. C-PACE allows building owners to finance solar PV projects through a special assessment on their property value. The Green Bank also offers a solar lease program to non-residential customers.
Low-interest loans	Connecticut Public Utilities Regulatory Authority	Long-term low-interest financing is available for systems **>50 kW**, administered by Banc of America Leasing & Capital. Interest rates are fixed and determined at the time of the loan. Power purchase agreements are not eligible.
Solar and Wind Energy Credit	Department of Taxation	Commercial system owners are eligible for a tax credit worth 35% of the system's value. The Hawaii tax credit is capped at $500,000 for commercial properties. Solar system owners are also eligible for a rebate for the value of the state's capital goods excise tax paid on the system (4% of system cost).

UTILITY INCENTIVE PROGRAMS

The state of Connecticut requires the IOUs, Eversource (previously called Connecticut Light and Power) and United Illuminated Company, to offer 15-year standard contracts to buy Zero Emission Renewable Energy Credits (ZRECs) from solar projects. Both utilities offer to buy ZRECs from small solar projects **(<100 kW)** through a small ZREC tariff.

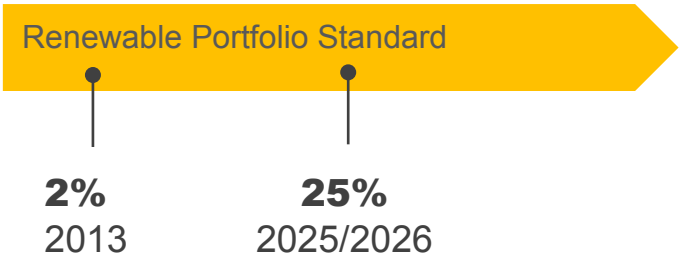
Utility	Incentive	Limitations
Eversource	$81/ZREC	**<100 kW**; expires January 1, 2017
United Illuminated Company (UI)	$84/ZREC	**<100 kW**; expires February 1, 2017
Eversource	$326/ZREC	**>100 kW** and **<1 MW**; expires May 1, 2018
United Illuminated Company (UI)	$303/ZREC	**>100 kW** and **<1 MW**; expires May 1, 2018

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Departmental of Energy and Environmental Protection: Renewable Portfolio Standard	http://www.ct.gov/pura/cwp/view.asp?a=3354&q=415186
Net metering and interconnection	Departmental of Energy and Environmental Protection: Net metering	http://www.ct.gov/deep/cwp/view.asp?a=2715&q=558644&deepNav_GID=1626
Community Solar Program	Shared Clean Energy Facility Pilot Program: Public Law 15-113	https://www.cga.ct.gov/2015/ACT/PA/2015PA-00113-R00SB-00928-PA.htm
Programs and incentives	Connecticut Green Bank: Connecticut Clean Energy Fund (CCEF)	http://www.ctcleanenergy.com/
	Departmental of Energy and Environmental Protection: Low-interest loans	http://www.ct.gov/pura/cwp/view.asp?a=3356&Q=504090&puraNav_GID=1702
	Department of Revenue Services: Sales and Use Tax Exemption	http://www.ct.gov/drs/cwp/view.asp?A=1514&Q=385310
	United Illuminated Company Zero Emission Renewable Energy Credits Program	https://www.uinet.com/wps/portal/uinet/about/doing%20business%20with%20ui/power%20procurement/!ut/p/a0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOJ9_D3dfZ3NPR09wwJNDTxNPI0C_YOcDQ0MTPULsh0VAfenORs!/
	Eversource Zero Emission Renewable Energy Credits Program	https://www.eversource.com/Content/ct-c/residential/save-money-energy/renewable-energy-credits

Delaware



Carve-out: 3.5% of retail electricity sales must come from solar PV
Tracking system: PJM- Generation Attribute Tracking System (GATS)

Delaware's RPS applies to investor-owned utilities (IOUs), retail electric suppliers, municipal utilities, and rural electric cooperatives. Exemptions can be made under certain circumstances. The 3.5% PV requirement is a part of main target.

Delaware's Green Energy Program requires utilities to offer rebates for solar PV systems. The state's Green Energy Endowment Program provides grants to support third-party financing. Mid-market customers may be eligible for low-interest financing from the Energize Delaware Revolving Loan Fund. Customer generators interested in selling Solar Renewable Energy Credits (SRECs) into the Delaware spot market must be certified by the Delaware Public Service Commission (PSC) as an eligible generator.

NET METERING

Delaware modified the state net metering significantly in 2017, including expanding to all customer classes, adding biogas and fuel cells as eligible technologies, addressing the ownership of Renewable Energy Certificates (RECs), and increasing the prior individual system limit of 25 kW. The state further extended net metering to farm service customers on residential rates, removed provisions requiring annual forfeiture of Net Excess Generation (NEG), and expanded the aggregate program capacity limit to 5% of electric supplier's aggregated customer monthly peak demand in 2009.

System size limit: **2 MW** for Delmarva; **500 kW** for Delaware Electric Cooperative (DEC): **100 kW** for farm customers on residential rates

Aggregate cap: 5% of electric supplier's aggregated customer monthly peak demand

Credit: Sum of volumetric energy components of delivery service charges

RECs: Customers retain ownership of RECs

Meter aggregation: Customers are allowed to aggregate meters to subscribe to a portion of a community-owned system

INTERCONNECTION

Delaware does not have a statewide interconnection standard. Delmarva, the state's only Investor Owned Utilities (IOUs) has four levels of interconnection based on system size and system type. The 2011 new guidelines apply to interconnections of all types of distributed generation (DG) systems of less than **10 MW** to the electric distribution system for the utility. An interconnection may be eligible for review if small generator facilities use lab certified equipment or field approved interconnection equipment.

Eligible Systems	Type of Interconnection
≤10 kW	10 kW Inverter Process
Voltage-Differentiated: <5 kV to ≤ 69 kV	Fast-Track Process
Applicable System Size (Regardless of Location): **500kW** to **4 MW**	
Applicable System Size (Regardless of Location): **500kW** to **5 MW**	
Through 20 MW	Study Process

System size limit: **10 MW** (limit of Delmarva's standard interconnection agreement)

Liability insurance: Varies by system size and/or type

External disconnect switch: Required

THIRD PARTY OWNERSHIP

Third-party power purchase agreements (PPAs) are allowed in Delaware. Third-party financing is supported by the state's Green Energy Endowment program.

COMMUNITY SOLAR

Community solar is allowed under the state's Community Net Metering Provisions. Owners of community solar facilities may assign net metering credits to any customer's account. Subscribers on the same distribution feeder as the system are compensated at the full retail rate. Subscribers on a different distribution feeder are compensation at a standard offer service rate.

STATE INCENTIVE PROGRAMS

Program	Administrator	Incentive
Energize Delaware Revolving Loan Fund	Delaware Sustainable Energy Utility (DESEU)	DESEU provides low-interest financing for solar projects to credit-qualified businesses through the Energize Delaware Revolving Loan Fund program. DESEU also serves as an SREC aggregator for customer-sited solar projects certified by the Delaware PSC and administers the bid process for the Delmarva SREC Procurement Program
Green Energy Endowment Program	Department of Natural Resources and Environmental Control	Provide cash grants to customers that have constructed, purchased, leased or who have executed a PPA and have placed the system in service. The state reserves 40% of the program's funds for non-residential projects. The grant amount shall be "no more than is necessary to promote deployment of renewable energy technologies."

UTILITY INCENTIVE PROGRAMS

Delmarva Power also administers an SREC procurement program. The program uses a public competitive solicitation process to procure SRECs under 20-year contracts. In 2015, the weighted average bid prices for SRECs were $60.40 for systems smaller than **30 kW**, $96 for systems between **30** and **200 kW**, and $53.26 for systems between **200 kW** and **2,000 kW**.

Utility	Incentive	Limitations
Delmarva Green Energy Fund	$0.85/W for first **5 kW** $0.25/W **>5 kW** Non-profits: $1.75/W for first **5 kW** $1.00/W **≤50 kW**	Systems **<50 kW** Rebate capped at $24,000
Delaware Electric Cooperative Green Energy Fund	$0.85/W for first **5 kW** $0.25/W **>5 kW**	Total rebate limited to $5,000 for customers with average peak monthly demand of less than 50 kW, and $7,500 for customers with average peak monthly demand above
Municipal Utility Green Energy Fund programs	33.3% of installed cost	Capped at $30,000

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Delaware Public Service Commission: Renewable Portfolio Standard and Green Power Products	http://depsc.delaware.gov/delrps.shtml
Net metering and Interconnection	Delmarva: Green Power Connection	http://www.delmarva.com/my-home/save-money-and-conserve-energy/renewable-energy/green-power-connections/net-energy-metering-interconnections/
	Public Utilities Title 26	http://delcode.delaware.gov/title26/c010/
Programs and Incentives	Arizona Commerce Authority: Energize Delaware Revolving Loan Fund	http://www.azcommerce.com/incentives/commercialindustrial-solar
	Delaware Department of Natural Resources and Environmental Control: Green Energy Program	http://www.dnrec.delaware.gov/energy/services/greenenergy/Pages/default.aspx
	Delaware Department of Natural Resources and Environmental Control Green Grant Delaware Programs	http://greengrantdelaware.com/
	Delaware Electric Cooperative-Solar Grants	http://www.delaware.coop/energy-saving-programs/solar-grants

Florida

Renewable Portfolio Standard: None

Carve-out: None
Tracking system: No formally adopted tracking system

Florida's net metering program is capped at 2 MW, which allows midscale projects receive credit for their excess generation. However, the state disallows third-party ownership power purchase agreements, limiting the development potential of the model. In 2014 the Florida Public Service Commission (PSC) voted to end the state's solar rebate program, many utilities responded by ending their utility programs at the end of 2015.

NET METERING

The Florida PSC adopted rules for the state's Investor Owned Utilities (IOUs) and requires municipal utilities and electric cooperatives to develop their own net metering programs. Utilities must file annual reports with the PSC.

System size limit: 2 MW (IOUs)

Aggregate cap: Not specified

Credit: Net excess generation is credited at the retail rate and reconciled at avoided cost on a yearly basis

RECs: Customers retain ownership of Renewable Energy Certificates (RECs)

Meter aggregation: Meter aggregation is not allowed

INTERCONNECTION

Florida PSC adopted interconnection rules for renewable energy systems up to 2 MW in capacity. The interconnection rules apply to the state's IOUs but they do not apply to electric cooperatives or municipal utilities.

Eligible Systems	Type of Interconnection
≤10 kW	Tier 1 systems; no application fee; within 3 weeks
>10 kW and ≤100 kW	Tier 2 systems; application fee of $240; 3 - 4 weeks
>100 kW and ≤2 MW	Tier 3 systems; application fee of $750; within 60 days

System size limit: 2 MW
Liability insurance: Not required for Tier 1, utilities may require $1 million for Tier 2 and $2 million for Tier 3
External disconnect switch: Varies by tiers

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are not allowed in Florida.

COMMUNITY SOLAR

Georgia currently does not have any statewide community solar policy or program. Utilities and third-party developers offer community solar programs.

STATE INCENTIVES

Program	Administrator	Incentive
Renewable Energy Production Tax Credit	Office of Energy, Department of Agriculture and Consumer Services	System owners are eligible for a production-based tax credit of $0.01/kWh for electricity sold to a third party. The rule stipulates that only output sold by the taxpayer to an unrelated party is an eligible basis for the credit
Property Assessed Clean Energy (PACE) financing	Local authorities	PACE allows property owners to repay loans for solar photovoltaic (PV) projects through a special assessment on the property over a specified loan term. Florida has authorized local governments to establish PACE programs for financing solar PV projects
Solar Sales Tax Exemption	Florida Department of Revenue	Solar equipment is exempt from state sales taxes

UTILITY INCENTIVES

Utility Program	Incentives	Limits
Orlando Utilities Commission	Offers to buy RECs for $0.05/kWh	Requirement for a steel electric meter base with the solar system
City of Tallahassee Utilities	Offers on-bill financing at an interest rate of 5% for solar PV	Maximum $20,000
Gainesville Regional Utilities	Offers a low interest loan for solar PV through its Low-Interest Energy Efficiency Loan Program	Maximum $10,000

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and interconnection	Florida Public Service Commission Order PSC-08-0161-FOF-EI: Interconnection and Net Metering Rule	https://www.fpl.com/clean-energy/pdf/net-metering-rule.pdf
	Florida Public Service Commission: Consumer Renewable Energy Systems 2015	http://www.psc.state.fl.us/ElectricNaturalGas/CustomerRenewableShowYear?folder=2015
Programs and incentives	Florida Solar Energy Center: Rebates and Incentives	http://www.fsec.ucf.edu/en/consumer/solar_electricity/rebates.htm
	Florida PACE Funding Agency	https://www.floridapace.gov/
	Orlando Utilities Commission: Solar Incentives	http://www.ouc.com/environment-community/solar/solar-incentives
	Tallahassee Utilities: Business Loans	https://www.talgov.com/you/you-products-business-loans.aspx

Georgia

Renewable Portfolio Standard: None

Carve-out: None
Tracking system: No formally adopted tracking system

The future of Georgia's state tax credit for solar PV is uncertain. Midmarket customers in the Georgia Power and Tennessee Valley Authority (TVA) service territories may be eligible for incentives.

NET METERING

The Georgia Cogeneration and Distributed Generation Act of 2001 allow but do not require utilities to adopt net metering. Georgia Power, the state investor-owned utility (IOU), does not offer a net metering tariff.

INTERCONNECTION

The 2001 Act allows up to **100 kW** renewable energy facilities to connect to the grid. The aggregate capacity of Distributed Generation (DG) systems cannot exceed 0.2% of a utility's system peak demand from the previous year. Georgia Public Service Commission (PSC) may adopt additional safety, power-quality and interconnection requirements.

THIRD PARTY OWNERSHIP

Third party solar Power Purchase Agreements (PPAs) are allowed in Georgia. Third-party system owners are exempt from regulation as an electricity service provider if the system generates no more than 125% of the customer's maximum annual peak demand.

COMMUNITY SOLAR

In 2016, the PSC approved a **3 MW** community solar pilot program by Georgia Power.

STATE INCENTIVES

There are currently no state incentives for midscale solar in Georgia

UTILITY INCENTIVES

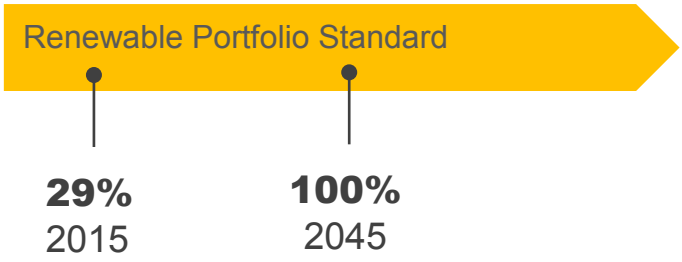
Utility Program	Incentives	Limitations
Georgia Power: Solar Buyback Program	$0.17/kWh	The program was full as of June 2015, but could resume if new customers subscribe to Georgia Power's Green Power Program.
Georgia Power: Advanced Solar Initiative	The program completed a competitive bidding process to procure solar power through contracts of up to 35 years.	The bidding process was closed as of 2016. It is unclear whether Georgia Power will offer new iterations of the Advanced Solar Initiative in the future.
TVA: TVA's Green Power Providers program	First 10 years: $0.02/kWh above the retail rate; an additional 10 years: retail rate	**<50 kW**
TVA: Renewable Standard Offer program	10-, 15-, or 20-year contracts at a rate that escalates 5% annually	**50 kW - 20 MW**
TVA: Solar Solutions Initiative	Additional $0.04/kWh for the first 10 years	**50 kW - 1 MW** Total capacity: 20 MW

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and interconnection	Georgia Cogeneration and Distributed Generation Act	http://prod-http-80-800498448.us-east-1.elb.amazonaws.com/w/images/9/9d/GA04R.pdf
Community solar	Georgia Public Service Commission: Approval of Georgia Power's Integrated Resource Plan	http://www.psc.state.ga.us/GetNewsRecordAttachment.aspx?ID=635
Programs and incentives	Georgia Power: Green Power Program	https://www.georgiapower.com/business/programs-and-services/green-energy/commercial.cshtml
	Georgia Power: Advanced Solar Initiative Distributed Generation	https://gpcasidg.accionpower.com/_solar_1501/accionhome.asp
	Tennessee Valley Authority: Renewable Energy Solutions	https://www.tva.gov/Energy/Renewable-Energy-Solution

Hawaii



Carve-out: None
Tracking system: None

Hawaii's Renewable Portfolio Standard (RPS) requires each utility company that sells electricity for consumption in Hawaii to source 100%of its net electricity sales from renewable energy by December 31, 2045. Hawaii also has specific goals 2020 (30%), 2030 (40%), and 2040 (70%).

In 2015, Hawaii became the only state with a 100% RPS. It also replaced its net metering program with supply options for net excess generation compensation. Hawaii provides commercial system owners with a 35% tax credit. It has a community solar program with utility tariff filed with the Public Utilities Commission.

NET METERING

In 2015, the Hawaii Public Utilities Commission voted to replace net metering with grid-supply or self-supply compensation options, as well as a time of use tariff option. Under the grid-supply option, PV customers can receive a reduced rate (between 40% and 75% of retail) for net excess generation. Under the self-supply option, PV customers are prohibited from exporting excess generation to the grid and qualify for an expedited interconnection study.

System size limit: **100 kW** for the three Hawaiian Electric Company's customers; 50 kW for KIUC customers

Aggregate cap: 15% per circuit distribution threshold for distributed generation penetration

Credit: Net excess generation is credited at retail rate

RECs: Not addressed

Meter aggregation: Virtual net metering tariffs have been developed by state utilities

INTERCONNECTION

Hawaii also established simplified interconnection procedures for net-metered systems (up to 50 kW in Kauai and up to 100 kW for all other islands). The PUC created a standard three-party interconnection agreement, in addition to the two-party interconnection agreement, to improve consistency and expedite the process. Hawaii has simplified interconnection rules for inverter-based distributed generation under 250kW (excluding Kauai). When a system does not meet certain technical screening criteria, a supplemental review process determines if simplified interconnection can take place, if interconnection requirements beyond simplified interconnection are needed, or if an interconnection requirement study is needed.

System size limit: No limit specified

Liability insurance: Generally required

External disconnect switch: Required

THIRD PARTY OWNERSHIP

Third-party system owners are exempt from regulation as a public utility.

COMMUNITY SOLAR

As of June 2015, Hawaii requires all utilities to submit proposals for community-based renewable energy tariffs with the Hawaii PUC. Utilities began submitting proposals in late 2015.

STATE INCENTIVES

Program	Administrator	Incentive
Farm and Aquaculture Alternative Energy Loan	Department of Agriculture	Agriculture and aquaculture solar PV projects are eligible for 3% and 5% interest rates loans, respectively, for up to 85% of the project cost (capped at $1,500,000).
Solar and Wind Energy Credit	Department of Taxation	Commercial system owners are eligible for a tax credit worth 35% of the system's value. The Hawaii tax credit is capped at $500,000 for commercial properties. Solar system owners are also eligible for a rebate for the value of the state's capital goods excise tax paid on the system (4% of system cost).

UTILITY INCENTIVES

Hawaiian Electric Company offers a feed-in tariff for solar PV generation. Feed-in tariff rates are defined for three system sizes.

Utility Program	Incentive	Limitations
Hawaiian Electric Company	$0.218/kWh	**<20 kW**
	$0.189/kWh	**20kW - 500 kW**
	$0.197/kWh	**500 kW - 5,000 kW**

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Hawaii State Energy Office: Renewable Energy	http://energy.hawaii.gov/renewable-energy
Net metering and interconnection	SB 1050: Mandatory community renewable energy tariffs	http://www.capitol.hawaii.gov/session2015/bills/SB1050_CD1_.htm
	Hawaiian Electric Company: Standard Interconnection Agreement	https://www.hawaiianelectric.com/clean-energy-hawaii/producing-clean-energy/standard-interconnection
Community solar	Department of Commerce and Consumer Affairs: Community-Based Renewable Energy	http://cca.hawaii.gov/dca/community-based-renewable-energy/
Programs and incentives	State of Hawaii, Department of Taxation: Solar and Wind Energy Credit	http://tax.hawaii.gov/geninfo/renewable/
	Hawaiian Electric Company: Feed-In Tariff	https://www.hawaiianelectric.com/clean-energy-hawaii/producing-clean-energy/selling-power-to-the-utility/feed-in-tariff
	State of Hawaii, Agricultural Loan Division: Alternative Energy Loan	http://hdoa.hawaii.gov/agl/alternative-energy-loan-program/
Other	Hawaii State Energy Office	http://energy.hawaii.gov/

Idaho

Renewable Portfolio Standard: None

Carve-out: None
Tracking system: No formally adopted tracking system

Mid-market customers may be eligible for financing through the Idaho Governor's Office and the Idaho Energy Resources Authority.

NET METERING

Idaho does not have statewide net metering, but all three IOUs (Avista Utilities, Idaho Power Co., and Rocky Mountain Power) have implemented net metering programs approved by the Idaho PUC.

Utility	System size cap	Rate	Meter aggregation
Avista Utilities	100 kW	Retail	Not addressed
Idaho Power Co.	100 kW	Retail	Allowed[1]
Rocky Mountain Power	100 kW	85% of avoided-cost rate (Retail rate for small commercial customers)	Not addressed

INTERCONNECTION

Idaho does not have standardized interconnection policy.

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are not allowed in Idaho.

COMMUNITY SOLAR

Idaho currently does not have any statewide community solar policies or programs. Utilities and third-party developers may offer community solar programs. Idaho Power, which allows meter aggregation, is proposing a 500 kW community solar project to the PUC.

[1] As of 2013, the Idaho PUC requires Idaho Power to allow meter aggregation for net-metered customers with several meters on the same or contiguous property. All aggregated meters must be under the same name or financial responsibility.

STATE INCENTIVES

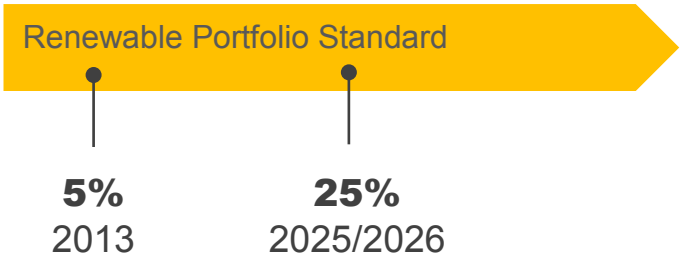
Program	Administrator	Incentive
Low-Interest Loan Program	Idaho Governor's Office	Offers 5-year loans for up to $100,000 at 4% interest for solar PV projects
Low-interest financing	Idaho Energy Resources Authority	Solar PV project developers may request financing from the Idaho Energy Resources Authority, a state bonding authority created under the Environment, Energy and Technology Resources Authority Act (2005)

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and interconnection	Idaho Power: Net Metering & Interconnection	https://www.idahopower.com/AboutUs/BusinessToBusiness/GenerationInterconnect/default.cfm
	Rocky Mountain Power: Net Metering	https://www.rockymountainpower.net/netmetering
	Avista: Net Metering Interconnection Process	https://www.avistautilities.com/services/interconnection/pages/process.aspx
Community Solar	Idaho Power: Community Solar Pilot Program	https://www.idahopower.com/AboutUs/EnergySources/Solar/community_solar.cfm
Programs and incentives	Governor's Office of Energy Resources: State Energy Loan Program	https://energy.idaho.gov/financialassistance/energyloans.htm

Illinois



Carve-out: 1.5% of total electricity sales must be from solar PV and 0.25% of the total electricity sales must be from distributed generation
Tracking system: Midwest Renewable Energy Tracking System (M-RETS); PJM Generation Attribute Tracking System (PJM-GATS)

Illinois's RPS requires IOUs and retail electric supplies to source 25% of eligible retail electricity sales from renewable energy by 2025. Electric cooperatives and utilities are exempt from the requirements.

Midmarket customers are eligible for a grant or rebate from the Illinois Department of Commerce and Economic Opportunity. Public benefit projects may be eligible for low-interest financing from the Illinois Finance Authority. Customer generators interested in selling solar renewable energy certificates (SRECs) must register with the PJM-GATS or M-RETS tracking systems. The Illinois Power Agency facilitates SREC transactions.

NET METERING

The Illinois Commerce Commission (ICC) defines competitive and non-competitive customer classes in the IOU service territories for net metering purposes. The non-competitive customer class includes non-residential customers with loads of less than 100 kW in the ComEd service territory and customers with loads of less than 150 kW in the Ameren service territory.

System size limit: 2 MW

Aggregate cap: Aggregate capacity limits at 5% of utility's peak demand in previous year

Credit: Non-competitive customers with electric service on a kWh basis with non-hourly pricing: retail rate

Non-competitive customers with electric service on a kWh basis with hourly pricing: energy credit plus delivery service credit

Non-competitive customers with electric service on a kW basis: 1:1 kWh credit

Competitive customers: Provider's avoided cost of electricity supply

RECs: Customers retain ownership of renewable energy certificates (RECs)

Meter aggregation: Virtual net metering is allowed. As of November 2015, no electric service provider in Illinois has elected to allow meter aggregation.

INTERCONNECTION

In 2008, ICC developed standards for all DG up to 10 MW with four tiers. ICC adopted interconnection standards for Large DG Facilities (over 10 MW) in 2010.[2]

Eligible Systems	Type of Interconnection
≤10 kW	Tier 1 expedited review process
>10 kW and ≤2 MW	Tier 2 expedited review process
>2 MW and ≤10 MW for non-exporting system ≤50 kW for exporting system	Tier 3 expedited review process
>10 MW	Full review process

System size limit: Not specified

Liability insurance: At least $2 million if > 1 MW

External disconnect switch: Required

THIRD PARTY OWNERSHIP

Third-party system owners are defined as “alternative retail electric suppliers” and therefore exempt from Illinois Commerce Commission regulation.

COMMUNITY SOLAR

There are currently no statewide community solar policies in Illinois. Utilities and developers may offer community solar programs.

STATE INCENTIVES

Program	Administrator	Incentive
Large Distributed Solar and Wind Grant Program	Illinois Department of Commerce and Economic Opportunity	Large-scale projects (minimum cost $100,000) are eligible for grants of up to $250,000. Grant solicitations are competitive and typically last six to eight weeks. Available to customers of utilities that impose the Renewable Energy Resources and Coal Technology Development Assistance Charge.
Renewable Energy and Energy Efficiency Project Financing program	Illinois Finance Authority	Solar projects that provide a “significant public benefit” may be eligible for tax-exempt financing. Eligible entities include commercial, non-profit, and education institutions.

[2] Interconnections covered by the FERC, the Midwest Independent Transmission System Operator, or PJM Interconnections are not subject to these rules.

UTILITY INCENTIVES

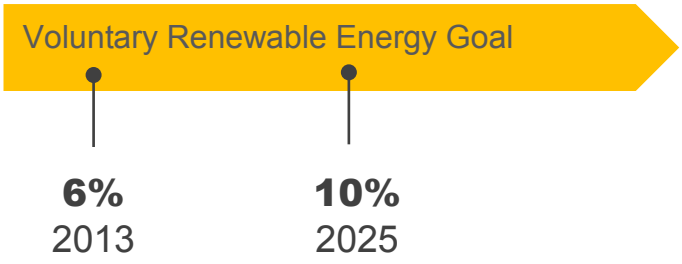
Check with local utilities for midscale solar incentives.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Illinois Commerce Commission: Renewable Energy Standard	https://www.icc.illinois.gov/electricity/renewableportfoliostandards.aspx
Net metering and interconnection	Illinois Attorney General: Net Metering and Interconnection	http://www.illinoisattorneygeneral.gov/environment/netmetering.html
	Ameren: Net Metering	https://www.ameren.com/illinois/electric-choice/net-metering
	ComEd: Net Metering and Interconnection	https://www.comed.com/SiteCollectionDocuments/faq_interconnection_netmetering.PDF
Programs and incentives	Illinois Department of Commerce and Economic Opportunity: Renewable Energy	http://www.illinois.gov/dceo/whyillinois/TargetIndustries/Energy/Pages/RenewableEnergy.aspx
	Illinois Finance Authority: Energy	http://www.il-fa.com/programs/energy
Other	Illinois Solar Energy Association	http://www.illinoissolar.org/homeownerincentives

Indiana



Carve-out: None
Tracking system: PJM-Generation Attribute Tracking System (PJM-GATS)

Indiana's Clean Energy Portfolio Standard sets a voluntary goal for not just renewables but also conventional resources such as nuclear, coal, and natural gas. Up to 30% of the goal may be met with clean coal, and 50% of the goal should be met by in-state resources.

Indiana allows net metering is allowed for up to 1 MW of capacity, enabling midmarket solar customers to receive credit for excess generation. It offers an expedited interconnection process for systems <2 MW.

NET METERING

The Indiana Utility Regulatory Commission (IURC) requires the state's IOUs to offer net metering to all electric customers.

System size limit: 1 MW

Aggregate cap: Aggregate capacity limits at 1% of utility's most recent peak summer load

Credit: Net excess generation is credited at the retail rate

RECs: REC ownership is not addressed

Meter aggregation: Meter aggregation is not addressed

INTERCONNECTION

IURC approved rules governing the interconnection of DG in 2005, requiring the state's IOUs to provide three levels of interconnection to customer-generators.

Eligible Systems	Type of Interconnection
Inverter-based systems ≤10 kW	Level 1
>10kW and ≤2 MW	Level 2
All other systems	Level 3

System size limit: Not specified

Liability insurance: Not required, "only reasonable amounts of insurance against risks for which there is a likelihood of occurrence."

External disconnect switch: Not required

THIRD PARTY OWNERSHIP

The status of third-party solar power purchase agreements (PPAs) is unknown in Indiana.

COMMUNITY SOLAR

Indiana currently does not have statewide community solar policies or programs. Individual utilities offer community solar programs.

STATE INCENTIVES

Indiana exempts solar PV modules, racking, and inverter from state sales and use taxes. The entire solar system is exempt from property taxation.

UTILITY INCENTIVES

Utility Program	Incentive	Eligibility
Northern Indiana Public Service Company (Solar PV feed-in-tariff)	$0.1564 and $0.17/kWh	**>5kW** and **<10 kW**
	$0.138 and $0.15/kWh	**>10kW** and **<200 kW**

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs

Renewable Portfolio Standard	Indiana CHOICE Program	http://www.in.gov/oed/2649.htm
Net metering and interconnection	IURC's Electricity Division	http://www.in.gov/iurc/2340.htm
	Northern Indiana Public Service Company: Net Metering Program	https://www.nipsco.com/our-services/renewable-energy-projects/net-metering-program
Programs and incentives	NIPSCO: Feed-in Tariff Program	https://www.nipsco.com/our-services/renewable-energy-projects/feed-in-tariff-program
	Illinois Finance Authority: Energy	http://www.il-fa.com/programs/energy
Other	Indiana Office of Energy Development	http://www.in.gov/oed/2412.htm

Iowa

Carve-out: None
Tracking system: Midwest Renewable Energy Tracking System (M-RETS)

Renewable Portfolio Standard

105 MW

Iowa's Alternative Energy Law was adopted in 1983, establishing a capacity-based requirement with no mandated increases.

Although Iowa does not have a future RPS, it allows its utilities to sell its renewable energy certificates (RECs) to neighboring states with higher obligations. The Iowa Energy Center administers financing and grant programs for solar PV projects. Solar projects are eligible for a 15% tax credit under the Iowa Department of Revenue's Solar Energy Systems Tax Credit program.

NET METERING

Iowa's net metering policy applies to the state's two investor-owned utilities (IOUs), Interstate Power and Light Company (IPL) and MidAmerican Energy Company. Customers with a third-party PPA for on-site renewable energy systems and customers on large general service tariffs (>20,000 kWh/month) are ineligible for net metering.

The Utilities Board has issued an order directing the IOUs to expand their net metering system capacity from 500 kW to 1 MW,

System size limit: 500 kW

Aggregate cap: Not specified

Credit: Net excess generation is credited at the retail rate

RECs: Not addressed

Meter aggregation: Not addressed

INTERCONNECTION

Iowa's interconnection standards apply to rate-regulated utilities (MidAmerican Energy, IPL, and Linn County Rural Electric Cooperative, which elected to have its rates set by the Iowa Utilities Board [IUB]). Interconnection requests for distributed generation facilities up to 10 MW are reviewed under a tiered classification system (classifications are based on system capacity, lab-certification of system components, and whether the system is connected to a radial distribution circuit or an area network).

Eligible Systems	Type of Interconnection
Lab-certified, inverter-based systems **≤10 kW**	Tier 1 Interconnection
Lab-certified systems with a capacity **≤2 MW**	Tier 2 Interconnection
Lab-certified, inverter-based systems **≤50 kW,** non-exporting systems connected to a radial distribution circuit **≤10 MW**	Tier 3 Interconnection
Other systems **≤10 MW**	Tier 4 Interconnection

System size limit: 10 MW

Liability insurance: Required for systems **≥1 MW** (general liability insurance policy with a limit of at least $2 million per occurrence and $ 4 million in aggregate); utility must be insured as additional party

External disconnect switch: Required for systems ≤100 kW; others at utility's discretion. Legislation passed in 2015 also mandated the IUB to implement a rule that systems placed in service on or after July 1, 2015 install a disconnection device adjacent to an interconnection customer's electric meter.

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are allowed in Iowa.

COMMUNITY SOLAR

There are currently no statewide community solar policies or programs in Iowa. Utilities or third-party developers offer community solar programs.

STATE INCENTIVES

Program	Administrator	Incentive
Alternative Energy Revolving Loan Program	Iowa Energy Center	Solar PV projects are eligible for no-interest financing for up to 50% of the financed project cost (capped at $1,000,000). The Iowa Energy Center also offers several matching grants for project development that may be used for solar PV projects.
Renewable Energy Production Tax Credit	Iowa Utilities Board	As an alternative to the Solar Energy Systems Tax Credit, system owners may elect to claim $0.015/kWh for 10 years. This program is temporarily closed to new capacity.
Solar Energy Systems Tax Credit	Department of Revenue	The tax credit for solar energy systems placed in service after January 1, 2016 is 50% of federal tax credits, capped at $5,000 for individuals and $20,000 for businesses. Iowa's Solar Energy Systems Tax Credit is worth 15% of a solar PV system installation (based on federal tax credits set at 30% of installation costs for both individuals and businesses).

UTILITY INCENTIVES

Utility Program	Incentive	Eligibility
Farmers Electric Cooperative	$0.125/kWh and a $1,000 rebate	**≤50 kW**
	solar PV incentives	**≤50 kW**

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and interconnection	Iowa Utilities Board: Order Directing Filing of Net Metering Tariffs	https://efs.iowa.gov/cs/groups/external/documents/docket/mdax/njaw/~edisp/1600470.pdf
Programs and incentives	Iowa Department of Revenue Tax Credits	https://taxcredit.iowa.gov/
Others	Iowa Energy Center	http://www.iowaenergycenter.org/

Kansas

Voluntary Renewable Portfolio Goal

20%
2020

Carve-out: None
Tracking system: North American Renewables Registry (NAR)

Kansas' original Renewable Energy Standard was changed in 2015 from a standard to a voluntary goal. The standard required investor-owned utilities and electric cooperatives to purchase 20% of the utility's peak demand from renewables. In-state generation has a multiplier of 1.1.

Kansas allows up to **100 kW** of solar PV projects to be net metered. Midmarket customer-generators with systems up to **200 kW** may be eligible for compensation through parallel generation contracts with the local utility.

NET METERING

Kansas' metering policy applies to the state's Investor Owned Utilities (IOUs): Westar, Kansas City Power and Light, and Empire Power District. Other electric cooperatives have elected to implement net metering programs as well. Net metering is available on a first-come, first-served basis up to an aggregate capacity limit of 1% of the IOU's retail peak demand for the previous year. For systems placed in service on or after July 1, 2014, credits for net excess generation are issued based on the utility's average monthly cost of energy per kilowatt-hour.

System size limit: Systems are capped at **100 kW** for non-residential customers and **150 kW** for schools

Aggregate cap: Not addressed

Credit: Retail price (systems began operating before July 1, 2014); at the average cost rate (systems began operating on or after July 1, 2014)

RECs: All net-metered systems count toward the utility's compliance with Kansas's RPS. The utility and the customer-generator may sell any associated RECs when generator's capacity is being utilized towards the utility's RPS compliance

Meter aggregation: Not addressed

As an alternative to net metering, customer-generators of systems up to **200 kW** may enter into a "parallel generation" contract with the utility, under which they export electricity to the utility at a rate of 150% of the utility's monthly average cost of energy for net excess generation

INTERCONNECTION

Kansas's interconnection policy applies to IOUs and limits systems capacity at **100 kW** for non-residential systems (**150 kW** for schools) placed in service on or after July 1, 2014. Utilities must provide a bi-directional meter to customers at no additional cost.

System size limit: **100 kW** for non-residential systems; **150 kW** for schools

Liability insurance: Additional insurance not required for generators that meet the technical standards

External disconnect switch: Utility's discretion

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are not allowed in Kansas. Currently only certified public utilities or customer-generators may own generating equipment.

COMMUNITY SOLAR

Kansas currently does not have statewide community solar policies or programs. Individual utilities offer community solar programs.

STATE INCENTIVES

Solar PV systems exempt from property taxation for 10 years.

UTILITY INCENTIVES

Please check local utilities for applicable midscale solar incentives.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Energy Standard	Kansas Corporation Commission: Renewable Energy Standard	http://kcc.ks.gov/energy/res.htm
Net metering and interconnection	Kansas Corporation Commission: Net Metering	http://www.kcc.state.ks.us/energy/net_metering.htm
	Interconnection Guidelines	http://www.kcc.state.ks.us/energy/interconnection/hb2018.pdf
Programs and incentives	Kansas Corporation Commission: Other Programs and Incentives	http://programs.dsireusa.org/system/program/detail/75
Other	Kansas Department of Revenue Policy Information Library: Solar Power Purchase Agreements (O-2016-001)	http://rvpolicy.kdor.ks.gov/Pilots/Ntrntpil/IPILv1x0.NSF/865782e7272861a38625655b004e9336/1e93c7f884a00cd586257f470068f011

Kentucky

Renewable Portfolio Standard: None

Carve-out: None
Tracking system: Midcontinent Independent System Operator-Midwest Renewable Energy Tracking System (MISO-MRETS), PJM-Generation Attribute Tracking System (PJM-GATS)

Kentucky currently has no state renewable portfolio standard or goal and no demand for renewable energy certificates (RECs). However, solar customers may sell RECs to the Ohio and Pennsylvania (for American Electric Power customers only) solar markets. Net metering for Kentucky's investor-owned utilities (IOUs) and electric cooperatives under the jurisdiction of the Kentucky Public Service Commission (PSC) is capped at **30 kW**, thus decreasing the economic feasibility of larger systems. Mid-market customers in the Tennessee Valley Authority (TVA) service territory may be eligible for incentives for systems from **50 kW** to **20 megawatts** (MW).

NET METERING

Customers of IOUs and electric cooperatives (with the exception of TVA utilities) are covered by the state's net metering policy for systems up to **30 kW**. Customers are credited for excess generation at the retail electricity rate.

Utilities' net metering obligations may be curtailed in cases where the aggregate generating capacity from net-metered systems hits 1% of the utility's single-hour peak load from the prevoius year.

For TVA service territory, please see TVA's Green Power Providers program in the utility programs section.

System size limit: **30 kW**

Aggregate cap: 1% of utility's single-hour peak load recorded during the previous year

Credit: Retail price

RECs: Customers retain ownership of RECs

Meter aggregation: Not addressed for solar PV.

INTERCONNECTION

Kentucky has a two-tiered interconnections approach to specify review criteria. Customers may submit interconnection applications, but utilities can either approve or deny the applications and negotiate interconnection contracts. Inverter-based systems up to **30 kW** with UL 1741 and IEEE 1541 certification can apply for interconnection and receive a decision within twenty days with no fees.

All other systems, including solar systems between **50 kW** and **5MW**, can apply under a level-2 application that may entail a $100 application fee and up to 30 days of processing time. Utilities may require these applicants to undergo an initial impact study.

Eligible Systems	Type of Interconnection
≤30 kW	Tier 1: 20 days, no fees
>30kW	Tier 2: 30 days, $100 fee may be required by utility. Further study may be required.

Kentucky requires that all interconnection systems and equipment comply with safety and quality standards set forth by the NEC, the IEEE, and accredited testing laboratories.

System size limit: **30kW**

Liability insurance: General liability insurance coverage is required for all systems

External disconnect switch: Utilities may require an external disconnect switch for approved systems at their own discretion. Please see individual utilities' requirements

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are not allowed in Kentucky. Third-party system owners are regulated as public utilities.

COMMUNITY SOLAR

There are currently no state-wide policy or programs in Kentuky to address community solar. Projects and participation may be available through utilities not under the jurisdiction of the PSC.

STATE INCENTIVES

Program	Administrator	Incentive
Tax Exemption for Large-Scale Renewable Energy Projects	Kentucky Department of Revenue	Solar projects greater than **50 kW** may be exempt from state sales and use taxes. Solar power sales from facilities larger than **50 kW** to an unrelated third party may be exempt from state income and limited liability entity taxes. The total value of tax refunds may not exceed 50% of the capital expenditure.
Renewable Energy Tax Credit (Corporate)	Kentucky Department of Revenue	Kentucky corporate taxpayers may take a credit equal to $3 per watt-dc, with a maximum of $500 per single family residential unit and $1000 for multi-family residential or commercial property.
Advanced Energy Gross Receipts Tax Deduction and Advanced Energy Compensating Tax Deduction	Kentucky Department of Revenue	The revenue from sales and leases of a qualified generating facility (solar PV or thermal electric generating facilities of 1 MW or more that began construction on or after July 1, 2010 but not later than December 31, 2015) are deductible from the gross receipts tax amount. This amount can also be deducted while calculating the compensating tax. The maximum combined benefit allowed from approved advanced energy tax credits[3], advanced energy gross receipts tax deductions and advanced energy compensating tax deductions for a "qualified generating facility" is not allowed to exceed $60,000,000. These deductions are available for a 10-year period for purchases and 25-year period for leases. This is calculated starting from the year development of the facility begins and expenditures are made or until the maximum combined benefit has been used.
Renewable Energy Tax Credit (Corporate)	Kentucky Department of Revenue	Kentucky corporate taxpayers may take a credit equal to $3 per watt-dc, with a maximum of $500 per single family residential unit and $1000 for multi-family residential or commercial property.

UTILITY INCENTIVES

Prospective customers in the TVA service territory may be eligible for TVA incentives. Systems smaller than 50 kW may qualify for TVA's Green Power Providers program, which buys 100% of system output for the first 10 years of operation at $0.02/kWh above the retail rate, and an additional 10 years of output at the retail rate. Mid-sized projects (**50 kW** to **20 MW**) may be eligible for TVA's Renewable Standard Offer program. The program buys mid-sized project output through 10-, 15-, or 20-year contracts at a rate that escalates 5% annually. In 2015, TVA began a pilot program titled the Solar Solutions Initiative that offers an additional $0.04/kWh for the first 10 years of solar projects. The program set aside 4 MW of program-eligible capacity for projects between **50kW** and **200 kW**.

[3] Advanced energy tax credits for personal and business use expired on 12/31/2015.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and interconnection	PSC: information about utilities (contains link to Net Metering and Interconnection Guidelines)	http://www.psc.ky.gov/Home/Utilities#Electric
Utility incentives programs	Tennessee Value Authority: Green Power Providers program	https://www.tva.com/Energy/Renewable-Energy-Solutions/Green-Power-Providers
Other	Department for Energy Development and Independence, Division of Renewable Energy	http://energy.ky.gov/renewable/Pages/default.aspx

Louisiana

Renewable Portfolio Standard: None

Carve-out: None
Tracking system: Midwest Renewable Energy Tracking System (M-RETS)

Some of Louisiana's net metering programs have hit the aggregate capacity limit of 0.5% of peak load. Its net metering and standard interconnection policies are both capped at 300 kW, which covers some portion of the midmarket. Louisiana allows local governments to implement Property Assessed Clean Energy (PACE) financing programs.

NET METERING

All investor-owned utilities (IOUs) and electric cooperatives in Louisiana are required to offer net metering for commercial and agricultural systems up to **300 kW**. The state caps utilities' net metering purchase requirements at 0.5% of their retail peak load. At least two Louisiana utilities have already exceeded this cap and are proceeding with solar photovoltaic (PV) interconnection under modified billing arrangements while the Louisiana Public Service Commission (PSC) evaluates changes to the state's net metering and customer-generated solar policies.

System size limit: **300 kW** commercial and agricultural, **25 kW** residential

Aggregate cap: 0.5% of utility's peak load

Credits: Net excess generation is credited at the retail rate

RECs: Not applicable

Meter aggregation: Not addressed

INTERCONNECTION

Louisiana utilities are responsible for providing customer-generators with interconnection meters; customers are responsible for interconnection costs, including installing the meter. All interconnection systems are required to meet safety and performance standards set forth by the NEC, the IEEE, the NESC, and UL. Net metering is required for all interconnection systems, and the same system capacity limits apply. Insurance requirements are not addressed.

System size limit: **300 kW** for commercial and agricultural, **25 kW** for residential

Liability insurance: Not addressed.

External disconnect switch: Required for most systems, with the exception of certain inverter-based systems that are designed to automatically shut down if utility service is lost

THIRD PARTY OWNERSHIP

The status of third-party ownership in Louisiana is unclear.

COMMUNITY SOLAR

There are currently no statewide community solar policies in Louisiana. Utilities and developers may offer community solar programs.

STATE INCENTIVES

Program	Administrator	Incentive
Solar Energy System Exemption	Louisiana Department of Revenue	Solar equipment attached to residential buildings or swimming pools is exempt from personal property taxation.
Sustainable Energy Financing Districts (SEFDs)	Local authorities	Louisiana allows local governments to form Sustainable Energy Financing Districts (SEFD), a form of Property Assessed Clean Energy (PACE) financing. PACE allows property owners to repay loans for solar PV projects through a special assessment on the property over a specified loan term. SEFDs are authorized to issue bonds and pay the bonds on assessments against property improvements. Property improvements that "interfere with a right held by a public utility" are not eligible for PACE financing.

UTILITY INCENTIVES

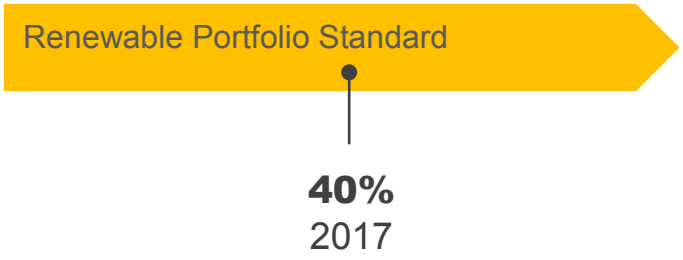
Please check with local utilities for midscale solar incentives.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and Interconnection	Entergy: Net Metering for Renewable Energy Resources	http://www.entergy-louisiana.com/your_home/net_metering.aspx
Programs and incentives	Louisiana Department of Revenue: Solar Energy System Tax Credit Cap	http://revenue.louisiana.gov/LawsAndPolicies/CreditCaps
Other	Louisiana Public Service Commission	http://www.lpsc.org/

Maine



Carve-out: None (community multiplier)
Tracking system: New England Power Pool Generation Information System (NEPOOL-GIS)

Additional requirement: 10% for Class I (New Resources) by 2017.
1.5 credit multiplier for qualifying community-based renewable energy projects

Maine has a 40% Renewable Portfolio Standard (RPS), with a 1.5 credit multiplier for qualifying community-based renewable energy projects. Maine-based nonprofits, community action programs, quasi-municipal corporations, and school administrative units may be eligible for grants from the Efficiency Maine Trust.

NET METERING

Maine's net metering policy (called "net energy billing") applies to all utilities. Legislation passed in 2015 requires the Maine Public Utilities Commission (PUC) to work with a stakeholder group to establish a long-term policy alternative to net metering.

System size limit Investor Owned Utilities (IOUs) required to provide net metering for facilities up to **660 kW** and municipal and cooperative utilities required to offer the incentive for systems up to **100 kW**.

Aggregate cap: Not addressed

Credit: Net excess generation is credited at the retail rate

RECs: Not addressed

Meter aggregation: Meter aggregation is allowed

INTERCONNECTION

Maine's tiered interconnection policy applies to transmission and distribution utilities, based on the size of the facility. Systems are required to meet IEEE and UL standards. Insurance requirements vary based on the size of the facility. Inverter-based facilities not exceeding 1 MW and non-inverter-based facilities up to 50 kW do not require insurance. All other facilities are required to have liability insurance ranging from $1 million to $3 million in coverage depending on the facility's rated capacity.

System size limit: Not specified

Liability insurance: Not required for systems **<1 MW**; varies by system size and/or type for other systems

External disconnect switch: Not required

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are allowed in Maine.

COMMUNITY SOLAR

Maine requires IOUs to offer virtual net metering to "shared ownership" customers. The state allows up to 10 meters to receive virtual net metering credits from a single eligible facility. Subscribers must have an actual ownership stake in the system, i.e., the enabling legislation precludes leasing a subscription.

STATE INCENTIVES

Program	Administrator	Incentive
Efficiency Maine Trust	Maine Public Utilities Commission	Maine-based nonprofits, community action programs, quasi-municipal corporations, and school administrative units may be eligible for grants for demonstration projects.
Property Assessed Clean Energy (PACE) financing	Local authorities	PACE allows property owners to repay loans for solar PV projects through a special assessment on the property over a specified loan term. Maine has authorized local governments to offer PACE financing.

UTILITY INCENTIVES

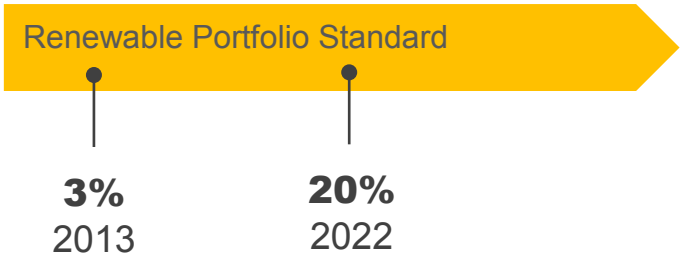
Please check local utilities for midscale solar incentives.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Maine Public Utilities Commission: Renewable Portfolio Standard	http://www.maine.gov/mpuc/electricity/RPSMain.htm
Net metering and interconnection	Maine Public Utilities Commission: Net Energy Billing	http://www.maine.gov/mpuc/legislative/documents/Net%20Energy%20Billing.pdf
	Maine Public Utilities Commission: Small Generator Interconnection Procedures	http://www.maine.gov/sos/cec/rules/65/407/407c324.doc
Community Solar	Efficiency Maine Trust	http://www.efficiencymaine.com/
Other	Maine Public Utilities Commission	http://www.maine.gov/mpuc/

Maryland



Carve-out: 2% solar photovoltaics (PV) by 2020
Tracking system: PJM-Generation Attributes Tracking System (PJM-GATS)

Mid-market customers may be eligible for several incentives offered by the Maryland Energy Administration. The Maryland Public Service Commission (PSC) has approved its final regulations for establishing a three-year pilot community solar program.

NET METERING

Net metering is available until the aggregate capacity of all net-metered systems reaches 1.5 GW. Net excess generation is carried over as a kilowatt-hour credit for 12 months and reconciled after the 12-month period at the commodity energy supply rate the commodity energy supply rate.

System size limit: 2 MW

Aggregate cap: 1,500 MW

Credit: Net excess generation is credited at the retail rate

RECs: Customers retain ownership of RECs

Meter aggregation: Virtual net metering is allowed for agricultural customers, non-profits, and municipal governments

INTERCONNECTION

The 2008 rules apply to interconnections of all types of distributed generation (DG) systems of less than 10 MW for all types of utilities. PJM Interconnections are exempt from this rule. Maryland interconnection rules cover four tiers, which are subject to specific technical screens and review procedures.

System size limit: 10 MW

Liability insurance: Not required for Level 1, required for Levels 2, 3 and 4 ($2 million per occurrence and $4 million in aggregate for systems larger than 1 MW).

External disconnect switch: Required (“lockable isolation device” or “draw-out type circuit breaker with a provision for padlocking at the draw-out position”).

THIRD PARTY OWNERSHIP

Third-party power purchase agreements (PPAs) are allowed in Maryland.

COMMUNITY SOLAR

In 2015, the Maryland PSC began a three-year community solar pilot program. Pilot projects must be **≤2 MW** and have at least two subscribers. Individual subscriptions are capped at 200 kW (or 60% of the project's total subscription). The Maryland PSC determines compensation rates.

STATE INCENTIVES

Program	Administrator	Incentive
Commercial Clean Energy Grant Program	Maryland Energy Administration	Offers grants of $60/kW for projects smaller than **100 kW**, and $30/kW for projects between **100** and **200 kW**.
Game Changer Competitive Grant Program	Maryland Energy Administration	Provides grants ranging from $50,000 to $250,000 for innovative applications of commercially available solar PV technology.
Mathias Agricultural Energy Efficiency Grant Program	Maryland Energy Administration	Farms and agricultural businesses are eligible for grants of up to 50% of the system cost, capped at $60,000 (solar PV is explicitly eligible).
Parking Lot Solar PV with EV Charger Grant Program	Maryland Energy Administration	Offers grants of $500/kW (capped at $250,000) for parking lot canopy projects greater than **75 kW** that include at least four Level II or Level III electric vehicle charging stations
State Agency Loan Program	Maryland Energy Administration	Maryland state agencies are eligible for 0% interest loans for solar PV projects.

UTILITY INCENTIVES

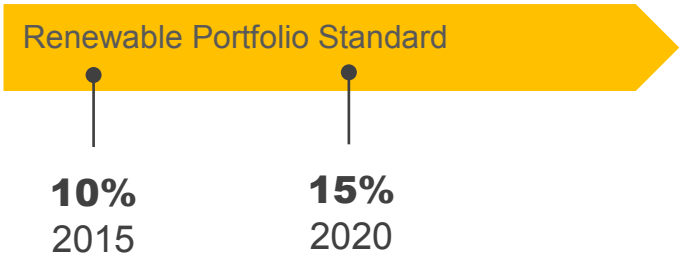
Please check with local utilities for midscale solar incentives.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Maryland Public Service Commission: Maryland Renewable Energy Portfolio Standard Program	http://www.psc.state.md.us/electricity/description-documents-maryland-renewable-energy-portfolio-standard-program/
Net metering and interconnection	PEPCO - Customer Generation And Interconnection	http://www.pepco.com/my-business/service-requests/customer-generation-and-interconnection/
	Choptank Electric Coop- Net Metering Application And Interconnection	http://choptankelectric.com/content/net-metering-0
Community solar	MD Sun: Community Solar	http://www.mdsun.org/solar-models/community-solar/
	Maryland Public Service Commission: Advances Community Solar Pilot Program	http://www.psc.state.md.us/wp-content/uploads/PSC-Advances-Community-Solar.pdf
Programs and incentives	Maryland Energy Administration: Incentives	http://energy.maryland.gov/Pages/Info/renewable/solar.aspx
Other	MD SUN	http://www.mdsun.org/about/about-us/

Massachusetts



Carve-out: 1600 MW by 2020 as a part of Class I renewables
Tracking system: New England Power Pool Generation Information System (NEPOOL-GIS)

Massachusetts' Renewable Portfolio Standard (RPS) mandates Class I resources (including solar PV) to make up a certain percentage of electricity sales by investor-owned utilities (IOUs) and retail suppliers, realizing 15% by the end of 2020 and an additional 1% each year thereafter.

Massachusetts had been a large market for mid-scale solar in the United States. However, recent policy changes have hindered the segment's growth. The Massachusetts Department of Energy Resources administers the Massachusetts SREC program, designed to support about 1,600 MW of solar PV by 2020. However, the eligibility for the SREC II program is limited to 6MW per system. In addition, it has imposed a factor of 0.8 for systems 25 kW and above and 0.7 for systems above 650 kW for renewable energy credits (RECs)[4], reducing the 10-year revenue stream for mid-market customers.

As the solar PV carve-out and net metering programs are nearly at capacity, Massachusetts increased its aggregate cap for net metering and adjusted its rates. The measures give exemptions to small systems that mid-market customers cannot benefit from.

NET METERING

Massachusetts' net metering is currently capped on an aggregate level at 9% (4% for private facilities and 5% for government facilities) of the utility's peak load. In April 2016, S.B. 1979 increased the state's net metering aggregate capacity limits from 4% to 7% of a utility's peak load for private facilities and from 5% to 8% for government facilities. Mid-scale systems are not exempt from the system cap.

Prospective customers seeking to net meter must apply for a "cap allocation" through the Massachusetts Cap Allocations website. The cap allocation enters the prospective customer into the "System of Assurance of Net Metering Eligibility", which allows the customer to know before project development whether the project will be eligible for net metering.

System size limit: **10 MW** for municipality and governmental entity; **2 MW** for "Class III" systems; **1 MW** for "Class II" systems; **60 kW** for "Class I" systems

Aggregate cap: Net-metered systems **>10 kW** in a single-phase circuit and **>25 kW** on a three phase circuit should not exceed 7% of a utility's peak load for private facilities and 8% for government facilities

Credit: After Massachusetts has reached 1,600 MW of solar, all non-residential and non-municipal customers will follow a "market net metering rate" for net excess solar generation, which will credit them only 60% of the full retail value

RECs: Customers retain ownership of RECs

Meter aggregation: Virtual net metering is allowed

[4] For example, if a PV system with a capacity above or equal to 25 kW and below 650 kW has generated 10 MWh, it can claim 8 SRECs. The other 2 MWh will be automatically retired and will not be usable for RPS compliance.

INTERCONNECTION

Massachusetts' interconnection rules apply to all DG systems and require IOUs to have standard interconnection tariffs. A project can follow three different interconnection review paths: simplified, expedited, and standard. Although mid-market systems fall above of the limit for simplified interconnection, they are eligible for the expedited process.

Eligible Systems	Type of Interconnection
IEEE 1547.1 certified inverter-based system **≤15 kW** for single-phase or **≤25 kW** for 3-phase	Simplified (maximum 15 days)
Inverter-based system **>15 kW** for single-phase or **>25 kW** for 3-phase; other systems on radial circuit that meet requirements	Expedited (40–60 days)
All other systems	Standard (125–150 days)

System size limit: None

Liability insurance: Varies by system size, type, and sector

External disconnect switch: Not required

THIRD PARTY OWNERSHIP

Third-party power purchase agreements (PPAs) are allowed in Massachusetts.

COMMUNITY SOLAR

The Massachusetts Green Communities Act enables the use of “neighborhood net metering credits” to compensate owners of neighborhood net metering facilities.

Massachusetts allows virtual net metering for solar systems up to 2 MW that serve at least 10 residential customers. Commercial customers may also subscribe to community solar projects, as long as the system meets requirements for residential customers. Subscribers are compensated through neighborhood net metering credits at the full retail rate.

STATE INCENTIVES

Program	Administrator	Incentive
Leading By Example Solar PV Canopy Grant Program	Executive Office of Energy and Environmental Affairs	State agencies, including higher education institutions, may be eligible for grants for solar PV canopy projects (e.g., parking lots, garage roofs, pedestrian walkways). Projects must be **>200 kW** or associated with an "innovative strategy" and include electric vehicle charging stations. State-owned systems are eligible for grants of $0.75/W. Third-party owned systems are eligible for grants of $0.50/W.
Massachusetts Renewable Energy Trust Fund	Massachusetts Clean Energy Center	Solar PV systems **≤1 MW** may be eligible for grants from the Renewable Energy Trust Fund.
Renewable Energy Property Tax Exemption	Massachusetts Department of Revenue	Solar systems used as primary or auxiliary power system for the property are exempt from property taxation for 20 years

UTILITY INCENTIVES

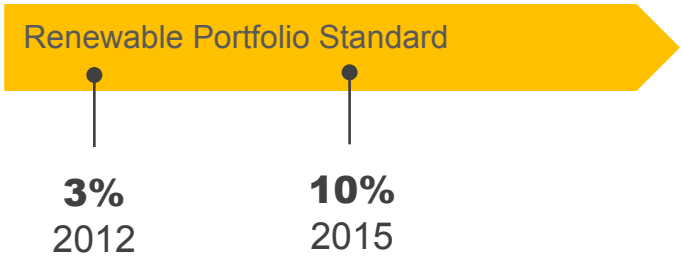
Utility Program	Incentive	Eligibility
Concord Municipal Light Plant	$0.625/W rebate	Capped at $3,125
Hudson Light & Power	$1.00-$1.25/W rebate Rebate amount depends on system orientation	Capped at $12,000 Systems must be **≤100 kW**

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Executive Office of Energy and Environmental Affairs: Solar carve-out/SREC II	http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/solar/rps-solar-carve-out-2/
Net metering and interconnection	Department of Public Utilities: Net metering	http://www.mass.gov/eea/energy-utilities-clean-tech/electric-power/net-metering/net-metering.html
	Massachusetts System of Assurance of Net Metering Eligibility	http://www.massaca.org/
	Department of Public Utilities: Distribution utility contacts	http://www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/agencies-and-divisions/dpu/net-metering-faqs.html#How do I contact my electric distribution company about net metering?
	MA Department of Natural Resources: Distributed generation and interconnection in Massachusetts	https://sites.google.com/site/massdgic/home/interconnection
Community solar	Executive Office of Energy and Environmental Affairs: Community shared solar	http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/solar/community-shared-solar.html
Programs and incentives	Massachusetts Clean Energy Center	http://www.masscec.com/learn-about-solar-electricity
	Executive Office of Energy and Environmental Affairs: Leading by Example (LBE) Program	http://www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/leading-by-example/
Other	MassSolar: Solar policies and resources	http://solarisworking.org/solar-policy-and-legislation

Michigan



Carve-out: None
Tracking system: Michigan Renewable Energy Certification System (MIRECS)

Michigan's RPS has additional requirements for the two largest Investor Owned Utilities (IOUs): DTE Energy: 600 MW by 2015 and Consumes Energy: 500 MW by 2015.

Solar is eligible for 2X credit multiplier

Michigan offers net metering to customers for up to 150 kW of system capacity, as well as streamlined interconnection for net-metered systems. Midmarket customers may be eligible for financing from the Michigan Energy Office.

NET METERING

Michigan's net metering rules apply only to rate-regulated utilities (IOUs and rural electric distribution cooperatives that have not opted for member regulation) and alternative electric suppliers.

System size limit: 150 kW

Aggregate cap: 0.75% of utility's peak load of the previous year

Credit: Smaller than 20 kW: retail rate; larger than 20 kW: power supply component of retail rate

RECs: Customers retain ownership of RECs

Meter aggregation: Not addressed

INTERCONNECTION

Interconnection standards include five levels of interconnection with cutoffs at 30 kW, 150 kW, 750 kW, and 2 MW. Utilities have detailed rules and procedures.

Eligible Systems	Type of Interconnection
Certified inverter-based system ≤2 kW	Category 1
Systems >20 kW and ≤150 kW	Category 2
Systems >150 kW and ≤550 kW	Category 3
Systems >550 kW and 2MW	Category 4
Systems >2MW	Category 5

System size limit: Not specified

Liability insurance: Varies by system size and type

External disconnect switch: Not required.

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are allowed in Pennsylvania. Third-party system owners are defined as “alternative electric suppliers” and therefore exempt from Public Service Commission regulation.

COMMUNITY SOLAR

There are currently no community solar policies in Michigan.

STATE INCENTIVES

Program	Administrator	Incentive
Energy Revolving Loan Fund	Michigan Energy Office	Solar PV projects are eligible for loans of up to $350,000 at 6% interest.
Renewable Energy Renaissance Zones	Michigan Economic Development Corporation	Solar PV equipment located within designated Renaissance Zones is exempt from the Michigan Business Tax, state education taxes, property taxes, and local income taxes.

UTILITY INCENTIVES

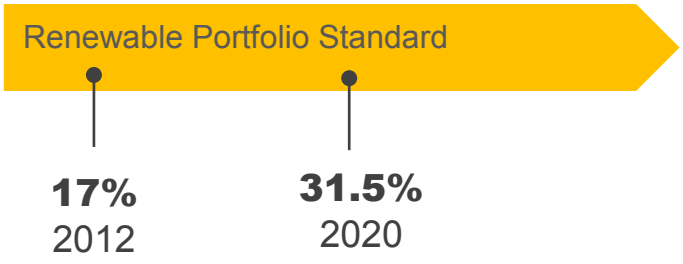
Non-profit customers in the service areas of member utilities of WPPI Energy may be eligible for grants of up to $100,000 for solar PV projects. The grant program does not have an explicit system size cap, but may “best apply” to systems **<80 kW**.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and interconnection	Michigan Public Service Commission: Net Metering Program	http://www.michigan.gov/mpsc/0,4639,7-159-16393_48212_58124---,00.html
	Michigan Public Service Commission: Interconnection	http://efile.mpsc.state.mi.us/efile/docs/15787/0046.pdf
	Consumers Energy: Net Metering Program	https://www.consumersenergy.com/content.aspx?id=1800
Programs and incentives	Renewable Energy Renaissance Zones	http://www.michiganbusiness.org/renaissance-zones/#fpprz
	Michigan Public Service Commission - tax credits and incentives	http://www.michigan.gov/mpsc/0,4639,7-159-16393_55027_55028---,00.html

Minnesota



Carve-out: 1.5% solar photovoltaics (PV) (Xcel Energy and other Investor Owned Utilities [IOUs]); 10% PV by 2030 (statewide goal)
Tracking system: Midwest Renewable Energy Tracking System (M-RETS), Michigan Renewable Energy Certification System (MIRECS)

Minnesota's Renewable Portfolio Standard (RPS) has additional requirements of 31.5% by 2020 for Xcel Energy; 26.5% by 2025 for IOUs; and 25% by 2025 for other utilities.

Minnesota offers net metering for systems up to 1 MW, which enables midscale systems to capitalize excess generation. Minnesota recently passed community solar enabling legislation. Mid-market agricultural and non-profit customers may be eligible for state incentives. Several Minnesota utilities offer solar rebates, mostly limited to smaller systems.

NET METERING

IOUs are prohibited from imposing standby charges on net-metered systems of less than 100 kW. Municipal utilities and electric cooperatives are explicitly allowed to charge an additional fee to recover fixed costs.

System size limit: 1 MW (40 kW for municipal utilities and electric cooperatives).

Aggregate cap: No limit

Credit: Average retail utility energy rate for <40 kW; avoided cost rate (customer may elect to a kilowatt-hour credit) for >40 kW;

Utilities are permitted to use a Value of Solar Tariff in lieu of net metering; no utilities have elected to do so as of August 2016.

RECs: Customers retain ownership of RECs

Meter aggregation: Minnesota Public Utilities Commission (MPUC) requires IOUs to offer meter aggregation. Aggregated meters must be located on contiguous property owned by the same customer. The sum of aggregated meters may not exceed net metering system size limitations

INTERCONNECTION

MPUC developed basic standards for utility tariffs for interconnection and the operation of distributed generation (DG) facilities up to 10 MW. Interconnection rules and procedures vary by utilities.

System size limit: 1 MW

Liability insurance: Varies by system size and type

External disconnect switch: Required

THIRD PARTY OWNERSHIP

The status of third-party ownership in Minnesota is unclear.

COMMUNITY SOLAR

The Minnesota Solar Energy Jobs Act requires Xcel Energy to purchase output from community solar gardens no larger than 1 MW per site. Xcel Energy responded to the legislation by launching the Solar Rewards Community program. Community solar gardens in the Solar Rewards program must have at least 5 subscribers, and no single subscriber may own than 40% of the garden. The Act requires compensation at a value of solar tariff, however compensation will default to the retail rate until the PUC approves a value of solar tariff.

STATE INCENTIVES

Program	Administrator	Incentive
Made in Minnesota Solar Energy Production Incentive program	Department of Commerce	Incentives are reserved for projects utilizing modules manufactured in Minnesota. The Commissioner of Commerce determines incentive amounts annually by customer class and module, in 2016 amounts ranged from $0.13 to $0.23/kWh for for-profit commercial projects. The program is only available in the service territories of participating IOUs.
Property Assessed Clean Energy (PACE) financing	Local authorities	PACE allows property owners to repay loans for solar PV projects through a special assessment on the property over a specified loan term. Minnesota has authorized local governments to establish PACE programs.
Sustainable Agriculture Loan Program	Minnesota Department of Agriculture	Farmers are eligible for 3% interest loans of up to $40,000 for solar PV projects that support on-farm energy production.
Zero-Interest Loans	Office of Energy Security	Non-profits may be eligible for 0% interest loans of up to $25,000.
Made in Minnesota Solar Energy Production Incentive program	Department of Commerce	Incentives are reserved for projects utilizing modules manufactured in Minnesota. The Commissioner of Commerce determines incentive amounts annually by customer class and module, in 2016 amounts ranged from $0.13 to $0.23/kWh for for-profit commercial projects. The program is only available in the service territories of participating IOUs.
Solar Energy Sales Tax Exemption	Department of Revenue	Solar PV systems are exempt from state sales taxes.

UTILITY INCENTIVES

Utility	Incentive	Limitations
Minnesota Power	$1.00/W; $1.50/W rebate for non-profits	Capped at $20,000 or 60% of system cost

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Minnesota State Government: Renewable Energy Standard	https://mn.gov/portal/natural-resources/renewable-energy/
Net metering and interconnection	Cogeneration and small power production	https://www.revisor.mn.gov/statutes/?id=216b.164
	Minnesota Department of Commerce: Distributed Energy Resources	https://mn.gov/commerce/industries/energy/distributed-energy/
	Minnesota Municipal Utilities Association	https://www.mmua.org/public-policy/energy-efficiency-renewables/distributed-generation
Community solar	Community Solar Garden Statute	https://www.revisor.mn.gov/statutes/?id=216B.1641
	Clean Energy Resource Teams: Solar Gardens Toolkit	http://www.cleanenergyresourceteams.org/solargardens/toolkit
Programs and incentives	Made in Minnesota Solar Incentive Program	http://www.mn.gov/commerce/consumers/your-home/save-energy-money/mim/
	Minnesota PACE	http://mnpace.com/
	Minnesota Department of Commerce: Financial Assistance	https://mn.gov/commerce/industries/energy/financial-assistance/
Other	Minnesota Renewable Energy Society	http://www.mnrenewables.org/
	Minnesota Solar Energy Industries Association	http://www.mnseia.org/policy-updates

Mississippi

Renewable Portfolio Standard: None

Carve-out: None
Tracking system: Midwest Renewable Energy Tracking System (M-RETS)

Mississippi's net metering rule established at the end of 2015 does not credit solar customers the full retail rate, but the utility avoided cost and a distributed generation premium. Although the incentive is not as favorable as the full retail rate that most states offer, Mississippi does include all solar systems **≤2 MW** in the program. Midmarket customers in the TVA service territory may be eligible for incentives.

NET METERING

Mississippi's net metering rules only allow instantaneous generation and use to be credited at retail rate. Customers' electricity contribution to the grid will only be credited at the utility's wholesale electricity rate plus an additional 2.5 cents per kWh premium.

System size limit: **20 kW** for residential**,** **2 MW** for non-residential

Aggregate capacity limit: Three percent of the utility's total system peak demand in the previous year

Credit: Customers are credited at the utility avoided cost plus DG adder of $0.25/kWh (total estimated 7 to 7.5 cent per kWh)

RECs: The customer retains ownership of RECs. If the customer receives benefits from the DG adder while selling electricity to the utility, then the RECs are transferred from the customer to the utility.

Meter aggregation: Not specified

INTERCONNECTION

In 2015, Mississippi approved its distributed generation interconnection standards for all electric utilities, including electric cooperatives. All distributed generation systems must be capable of being isolated from the electric utility. The rules provide three levels of review depending on system capacity.

Eligible Systems	Type of Interconnection
Certified inverter-based systems **≤20 kW**	Level 1: 15 days approval, no interconnection fee
Systems **≤2 MW**	Level 2: 20 days approval, up to $50 plus $1/kW interconnection fee
All other systems	Level 3: detailed interconnection process, up to $100 plus $2/kW interconnection fee

System capacity limit: **2 MW**

Liability insurance: Not required

External disconnect switch: Required for Level 2 and Level 3 systems

THIRD PARTY OWNERSHIP

The status of third-party ownership in Mississippi is unclear.

COMMUNITY SOLAR

There are currently no statewide community solar policies in Mississippi. Utilities or developers may offer community solar programs.

STATE INCENTIVE PROGRAMS

There are no state incentives programs in Mississippi for midscale solar.

UTILITY INCENTIVES

Prospective customers in the Tennessee Valley Authority (TVA) service territory may be eligible for TVA incentives. Systems **<50 kW** may qualify for TVA's Green Power Providers program, which buys 100% of system output for the first 10 years of operation at $0.02/kWh above the retail rate, and an additional 10 years of output at the retail rate. Mid-sized projects (**50 kW** to **20 MW**) may be eligible for TVA's Renewable Standard Offer program. The program buys mid-sized project output through 10-, 15-, or 20-year contracts at a rate that escalates 5% annually. In 2015, TVA began a pilot program titled the Solar Solutions Initiative that offers an additional $0.04/kWh for the first 10 years of solar projects. The program set aside 4 MW of program-eligible capacity for projects between **50** and **200 kW**.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and interconnection	Mississippi Public Service Commission: Net Metering Rule	http://www.psc.state.ms.us/InsiteConnect/InSiteView.aspx?model=INSITE_CONNECT&queue=CTS_ARCHIVEQ&docid=362179
	Mississippi Public Service Commission: Distributed Generator Interconnection Rule	https://www.psc.state.ms.us/executive/pdfs/2016/Net%20Meeting%20and%20Interconnection%20Rules.pdf
Programs and incentives	Tennessee Valley Authority: Renewable Energy Solutions	https://www.tva.gov/Energy/Renewable-Energy-Solutions

Missouri

Renewable Portfolio Standard

15%
2021

Carve-out: 0.3% of annual electricity sales in 2021 should come from solar electricity
Tracking system: Midwest Renewable Energy Tracking System (M-RETS)

RPS applies to state investor-owned utilities and not municipal utilities or electric cooperatives.

Missouri limits net metering and interconnection of renewable energy systems to 100 kW. It provides loans to local governments, schools, state governments and institutions and exempts solar energy systems from state, local, and county property taxes. Utilities offer low-interest loans and solar rebates.

NET METERING

Missouri's net metering policy applies to all investor-owned utilities (IOUs), municipal utilities, and cooperatives.

System size limit: 100 kW

Aggregate cap: Based on previous calendar year, 1% of utility's single-hour peak load (annually) and 5% of utility's single-hour peak load

Credit: Net excess generation is credited at avoided-cost rate

RECs: REC ownership can be transferred to utilities under some circumstances, but RECs are otherwise retained by the customer-generators

Meter aggregation: Not addressed

INTERCONNECTION

Systems up to 100 kW that are sited on a facility that is either owned, operated, leased, or otherwise operated by the customer are eligible for interconnection under Missouri's Net Metering and Easy Connection Act, enacted in 2007. The systems must be used to offset customers' own electricity requirements.

Eligible Systems	Type of Interconnection
≤10 kW	Simplified (within 30 days)
>10 kW and <100 kW	Simplified (within 90 days)

System size limit: 100 kW

Liability insurance: There are no requirements for systems <10 kW; systems >10 kW are required to be insured for $100,000

External disconnect switch: Utility's discretion

THIRD PARTY OWNERSHIP

The status of solar power purchase agreements (PPAs) in Missouri is unclear or unknown.

COMMUNITY SOLAR

There are currently no statewide community solar policies in Missouri. Utilities abd developers offer community solar projects.

STATE INCENTIVES

Program	Administrator	Incentive
Energy Loan Program	Missouri Department of Economic Development	The state provides loans to local governments, schools, state governments and institutions up to $1,000,000 for a term of 10 years and interest rate of 2.75%.
Solar Property Tax Exemption	State Tax Commission of Missouri	In Missouri, solar energy systems are exempt from state, local, and county property taxes if they are not a resale.

UTILITY INCENTIVES

Utility	Incentive	Limitations
Columbia Water & Light	Low-interest loans for PV systems.	Loan terms range 1% for up to three years, 3% for 4–5 years, and 5% for 6–10 years. Loans are capped at $15,000 for residential customers and $30,000 for commercial customers.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Missouri Department of Economic Development: Missouri Renewable Energy Standard	https://energy.mo.gov/energy/communities/community-tips/renewable-energy
Net metering and interconnection	Missouri Department of Economic Development: Division of Energy	https://energy.mo.gov/energy
	Missouri Department of Economic Development: Net Metering and the Easy Connection Act fact sheet	https://energy.mo.gov/energy/pubs/pub2238.pdf
Programs and incentives	Missouri Department of Economic Development: Energy Loan Program	https://energy.mo.gov/energy/communities/assistance-programs/energy-loan-program
	Columbia Water & Light: Solar Energy Loans	http://columbiapowerpartners.com/solar-energy-loans/
	Columbia Water & Light: Solar Rebates	http://columbiapowerpartners.com/solar-systems/
	Empire District Electric Company: Solar Rebate	https://www.empiredistrict.com/Environmental/SolarRebate.aspx
Other	Renew Missouri	http://www.renewmo.org/

Montana

Carve-out: None
Tracking system: Midwest Renewable Energy Tracking System (M-RETS), Western Renewable Energy Generation Information System (WREGIS)

Renewable Portfolio Standard

Montana's RPS requires public utilities and competitive electricity suppliers with more than 50 customers to obtain 5% of their retail sales from renewables by 2015, and maintain the percentage each year thereafter.

15%
2015

Montana has a Renewable Portfolio Standard (RPS) requirement of 15% for 2015 and each year after that. Net metering policy in the state requires unused net excess generation to be credited to the utility on an annual basis. The state has a fast track and expediated interconnection process for systems under 50 kilowatts (kW) and 2 MW respectively. The sate offers low interest loans, corporate and personal tax credits, property tax exemptions and reductions to encourage renewable energy generation.

NET METERING

Net metering is regulated in NorthWestern Energy (NWE) and the Montana-Dakota Utilities (MDU) service territories. A resolution passed in April 2015, required the Montana Legislature's Energy and Telecommunications Interim Committee (ETIC) to conduct a net metering costs and benefits study. The ETIC met in early 2016 to discuss its findings and to understand if the existing state net metering policy needs change.

Montana Electric Cooperatives' Association (MECA)[5] adopted model interconnection guidelines in 2001 and a revised net-metering policy in September 2008. 26 electric cooperatives in Montana have completely or partly adopted net-metering policies for their customers. According to the model policy net excess generation by customer generators of co-ops can be carried forward to the next billing cycle but is not purchased by the co-op. Thus, the primary goal of such a generating facility is to primarily offset its electrical requirements. Unused kilowatt-hours are granted to the co-op at the end of the 12 month billing cycle.[6]

System size limit: **50 kW** at NWE and MDU, and **10 kW** for electric cooperatives in Montana.

Aggregate cap: No specified

Credit: Net excess generation is credited at the retail rate

RECs: Not addressed

Meter aggregation: Not addressed

[5] MECA represents over 25 consumer-owned electric distribution cooperatives and three generation and transmission cooperatives.
[6] For more information on efforts of electric co-operatives on net-metering please contact the particular co-operative. Contact information for these co-operatives can be found here http://www.montanaco-ops.com/content/member-co-ops.

INTERCONNECTION

These interconnection standards applicable to the investor owned utilities (IOUs) and cooperatives for systems up to 10 MW were adopted in August 2010. These rules require interconnection equipment to follow the IEEE 1547-2003 and UL 1741 standards, while incorporating National Electrical Code (NEC) requirements. Interconnection review process is dependent on system size (see below).

Eligible Systems	Type of Interconnection
≤ 50 kW	Fast track process
>50kW and ≤2 MW	Expedited review
>2MW and ≤10 MW	Regular interconnection review

System size limit: 10MW

Liability insurance: Not addressed

External disconnect switch: External utility disconnect switch is required for all small generator interconnections.

THIRD PARTY OWNERSHIP

The status of third-party power purchase agreements (PPAs) in Montana is unclear.

COMMUNITY SOLAR

There are currently no statewide community solar policies or programs in Montana.

STATE INCENTIVES

Program	Administrator	Incentive
Alternative Energy Revolving Loan Program (AERLP)	Montana Department of Environmental Quality	Customers installing alternative energy systems or implementing energy conservation measures are eligible for loans up to a maximum of $40,000 to be repaid within ten years. Annual interest rates are applicable for the loan term, and the interest rate for 2016 is 3.25%.
Alternative Energy Tax Credit	Montana Department of Environmental Quality	Commercial and net metering renewable energy investments of over $5,000 are eligible for tax rebates of 35% against personal or corporate tax on the income generated by the investment. This credit is required to be taken the year the system is in service and can be carried over for seven years. If the project is 5 MW or larger and on a reservation and meets other specific criteria, the tax credit can be extended through 15 years.
Residential Alternative Energy System Tax Credit	Montana Department of Environmental Quality	Residential customers are eligible for tax rebates of $500 for an individual tax payer and up to $1,000 for a household by installing renewable energy systems. This can be carried over for four years.
Renewable Energy Systems Exemption	Montana Department of Environmental Quality	100% property tax exemption is allowed on an investment of $20,000 for a single-family residential dwelling and $100,000 for a multi-family, non-residential dwelling. This tax exemption is applicable for renewable systems and can be availed for 10 years after installation of the system.
Generation Facility Corporate Tax Exemptions	Montana Department of Environmental Quality	New renewable energy generation facilities with a maximum capacity of 1 MW have 100% property tax exemption for five years after start of operation.
Property tax reduction for renewable generating facilities of 1 MW or greater	Montana Department of Environmental Quality	Renewable energy generation facilities with a minimum capacity of 1 MW have 50% reduction in the new or expanded industry property tax for five years after their construction permit is issued. For the next five years, the percentage of taxable amount is increased in increments of 10% each year, until the tenth year where the full amount is taxed.

UTILITY INCENTIVES

NorthWestern Energy has an E+ renewable energy program which has custom incentives for projects benefitting organizations and communities for non-profit or government facilities. Through the E+ Green program customers are allowed to purchase renewable energy environmental benefits at $0.02/kWh in 100 kWh blocks. This money is used to fund new renewable energy projects.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Public Utilities Renewable Energy Resource Standard	http://www.mtrules.org/gateway/ruleno.asp?RN=38.5.8301
Net metering and interconnection	Department of Environmental Quality: Net metering	http://deq.mt.gov/Energy/EnergizeMT/renewable/NetMeterRenew
	Department of Environmental Quality: Alternative Energy Revolving Loan Program (AERLP)	http://deq.mt.gov/Energy/EnergizeMT/Renewable/altenergyloan
Programs and incentives	Department of Environmental Quality: Alternative Energy Tax Credit	http://deq.mt.gov/Energy/EnergizeMT/Renewable/TaxIncentRenew#15-32-401
	Department of Environmental Quality: Residential Alternative Energy System Tax Credit	http://deq.mt.gov/Energy/EnergizeMT/Renewable/TaxIncentRenew#15-32-201
	DEQMT Renewable Energy Systems Exemption	http://deq.mt.gov/Energy/EnergizeMT/Renewable/TaxIncentRenew#15-6-224
	DEQMT Generation Facility Corporate Tax Exemptions	http://deq.mt.gov/Energy/EnergizeMT/Renewable/TaxIncentRenew#15-6-225
	DEQMT Property tax reduction for renewable generating facilities of 1 MW or greater	http://deq.mt.gov/Energy/EnergizeMT/Renewable/TaxIncentRenew#15-24-1401
Utility Incentives	NorthWestern Renewable Energy Incentives	http://www.northwesternenergy.com/save-energy-money/business-services/efficiency-plus-rebates-and-programs/montana/renewable-energy

Nebraska

Renewable Portfolio Standard: None

Carve-out: None
Tracking system: Western Renewable Energy Generation Information System (WREGIS)

Net metering and interconnection regulations were passed in 2009 in Nebraska. The state does not have a renewable portfolio standard. The state also does not have a policy on community solar, although utilities have initiated community solar projects in the state. State incentives include low interest loans for project development, sales, use, and property tax exemptions, and production based tax credits.

NET METERING

Nebraska adopted net metering and interconnection regulations in 2009 with Legislative Bill (L.B.) 436. Net metering is applicable to qualified facilities generating electricity from renewable sources with a rated capacity at or below 25 kilowatts (kW). The net excess generation compensation is credited to customers on a monthly rolling basis, and any remaining compensation is annually paid to the customers. The compensation varies amongst different utilities but is a minimum of the avoided cost of electricity.

System size limit: 25 kW

Aggregate cap: 1% of utility's average monthly peak demand

Credit: Net excess generation is credited at avoided-cost rate

RECs: Customers retain ownership of RECs

Meter aggregation: Meter aggregation is not allowed

INTERCONNECTION

Costs sustained by the local distribution utility for equipment or services required for interconnection are funded by customer-generators, however a bidirectional meter should be provided to a customer free of charge by the utility. A customer facility must meet all applicable safety, performance, interconnection and reliability standards established by the National Electric Code, the National Electric Safety Code, and the Institute of Electrical and Electronics Engineers.

System size limit: 25 kW

Liability insurance: Additional liability insurance not required for systems that meet all safety and interconnection standards

External disconnect switch: The qualified facility must be capable of automatically isolating itself from the electrical grid

THIRD PARTY OWNERSHIP

The third-party solar power purchase agreements (PPAs) status is unclear in Nebraska.

COMMUNITY SOLAR

There is no current policy on community solar in Nebraska. However, the state does offer an incentive program for community renewable energy projects (see table below). Among utilities operating in the state, Lincoln Electric System has a 5 MW community solar project, and the Nebraska Public Power District initiatied a community solar pilot program called Sunwise, with enrollment starting in October 2016.

STATE INCENTIVES

Program	Administrator	Incentive
Dollar and Energy Savings Loans	Nebraska Energy Office	It provides low interest (up to 5%) loans for renewable energy and energy efficiency projects over 3–15 years. The cap on the loan amount depends on type of customer and technology used. The maximum loan amount for solar, wind and fuel cell technologies has been increased to $500,000 per project starting August 2016.
Sales Tax Incentive	Nebraska Department of Revenue	Customers are reimbursed sales and use taxes (not municipality taxes) on renewable systems with a minimum investment of $20,000,000.
Sales and Use Tax Exemption for Community Renewable Energy Projects	Nebraska Department of Revenue	This provides 100% tax exemption on the sales and use tax imposed on the sale, lease, or rental of personal property for use in a community-based energy development (C-BED) project[7].
Renewable Energy Tax Credit (Personal and Corporate)	Nebraska Department of Revenue	Nebraska offers a production-based tax credit to renewable generators in the residential, commercial, industrial, agricultural sectors placed into service on or after July 14, 2006 for up to 10 years after the facility is established. The tax credit amount depends on the amount of electricity produced and is $0.0005 per kWh for electricity generated on or after January 1, 2013. This credit can be used to reduce the producer's Nebraska income tax liability or to obtain a refund of state sales and use taxes paid by the producer. The budget for this incentive is limited to $50,000.
Property Tax Exemption for Renewable Energy Generation Facilities	Nebraska Department of Revenue	In May 2015, L.B. 424 was enacted which added solar energy to the mix of renewable technologies applicable for this tax exemption. This provides 100% tax exemption for systems **≥100 kW**, from the property tax levied on depreciable tangible personal property.

[7] A C-BED project is defined as a new energy generation project using wind, solar, biomass, or landfill gas as the fuel source that has at least 25% of the gross power purchase agreement payments flowing to the qualified owner or owners or as payments to the local community and has a resolution of support adopted by the county board of each county in which the C-BED project is located or by the tribal council for a C-BED project located within the boundaries of an Indian reservation.

Dollar and Energy Savings Loans	Nebraska Energy Office	It provides low interest (up to 5%) loans for renewable energy and energy efficiency projects over 3–15 years. The cap on the loan amount depends on type of customer and technology used. The maximum loan amount for solar, wind and fuel cell technologies has been increased to $500,000 per project starting August 2016.

UTILITY INCENTIVES

Lincoln Electric System makes a one-time capacity payment to the owner of the renewable generation based on the contribution of peak reduction by the renewable resource.

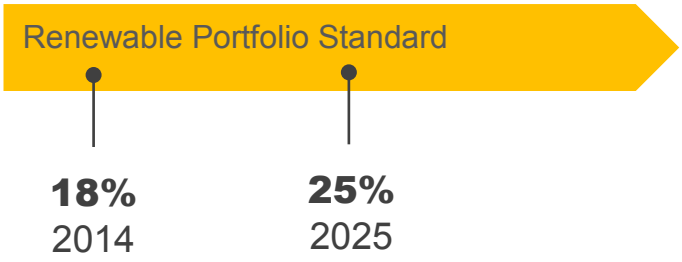
Utility Program	Incentives	Eligibility
Lincoln Electric System - Renewable Energy Rebate	Rebate of $375/kW-DC of solar nameplate capacity for southern-facing fixed systems Rebate of $475/kW-DC of nameplate capacity for western-facing fixed solar systems Rebate of $475/kW-DC of nameplate capacity for single or dual tracking solar	Maximum system size: **100 kW**

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and interconnection	DSIRE: Net metering rules	http://programs.dsireusa.org/system/program/detail/3386
	DSIRE: Interconnection guidelines	http://programs.dsireusa.org/system/program/detail/3387
	Department of Public Utilities: Distribution utility contacts	http://www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/agencies-and-divisions/dpu/net-metering-faqs.html
Programs and incentives	Nebraska Energy Office: Dollar and Energy Savings Loans	http://www.neo.ne.gov/loan/
	Nebraska Legislature: Sales Tax Incentive, Nebraska Revised Statute 77-5725	http://nebraskalegislature.gov/laws/statutes.php?statute=77-5725
	Nebraska Legislature: Sales and Use Tax Exemption for Community Renewable Energy Projects, L.B. 412	http://www.nebraskalegislature.gov/FloorDocs/104/PDF/Slip/LB412.pdf
	DSIRE: Renewable Energy Tax Credit (Personal and Corporate)	http://programs.dsireusa.org/system/program/detail/1837 http://programs.dsireusa.org/system/program/detail/2575
	Nebraska Legislature: Property Tax Exemption for Renewable Energy Generation Facilities, L.B. 424	http://nebraskalegislature.gov/FloorDocs/104/PDF/Slip/LB424.pdf
	DSIRE: Lincoln Electric System - Renewable Energy Rebate	http://programs.dsireusa.org/system/program/detail/5553

Nevada



Carve-out: 6% of total sales must come from solar energy annually from 2016 to 2025 (1.5% of total sales in 2025)
Tracking system: Nevada Tracks Renewable Energy Credits (NVTREC), Western Renewable Energy Generation Information System (WREGIS)

Nevada requires utilities to comply with a 25% Renewable Portfolio Standard (RPS) requirement by 2025. Of this, at least 6% of the energy is required to come from solar energy i.e. 1.5% of their total sales need to be from solar energy from 2016 to 2025. 20% of the requirement between 2015 and 2019 and 10% between 2020 and 2024 can be attributed towards energy efficiency measures

Nevada made notable changes to its net energy metering tariff and regulations in December 2015, reducing credits for excess generation to the grid.

NET METERING

After Nevada reached its earlier net-metering statewide capacity of 235 MW, new net metering regulations for Nevada IOUs were developed by the Public Utility Commission of Nevada (PUCN) in March 2015. The new rules effective from January 1, 2016.

As per the updated and previous regulations, IOUs are required to compensate net-metered customers with systems below 1 MW and customers producing 100% of their annual electricity requirements. Net excess generation is credited at the avoided cost rate.

New tariffs for net metering customers will be gradually implemented over the next twelve years with a tri-annual increase. These rates include an increased basic service charge, a reduced volumetric charge for energy and a new rate for compensation of excess generation. The compensation will be based on the avoided energy cost and a credit for reduced energy/line losses.

The order allows time-of-use and time-of-production rates during peak and off-peak periods.

These net-metering rules are not applicable for rural electric co-ops and municipal utilities, which may develop their own net metering regulations.

System size limit: 1 MW or 100% of cutomer's annual requirements for electricity

Aggregate cap: None

Credit: Exported generation is credited at the avoided cost rate

RECs: Customer retain the ownership of RECs

Meter aggregation: Not addressed

INTERCONNECTION

Interconnection standards were adopted by PUCN in 2003 for customer generators of Nevada Power and Sierra Pacific Power with system sizes up to **20 MW**.

System size limit: **1MW** or 100% of the customer's annual requirements for electricity

Liability insurance: Facilities are not required to purchase additional liability insurance if they meet the required codes and standards.

External disconnect switch: Not addressed

THIRD PARTY OWNERSHIP

Third-party ownership is allowed but is limited to systems generating less than 150% of the average annual electricity consumption.

COMMUNITY SOLAR

Currently there are no statewide community solar policies or programs. For more information on local community solar programs please contact local utilities and service providers.

STATE INCENTIVES

Program	Administrator	Incentive
Portfolio Energy Credits	Public Utilities Commission of Nevada	Customer generators who do not avail renewable energy rebates from other state incentive programs are eligible to participate in the Portfolio Energy Credits (PEC) Trading Program. Under this program, renewable energy producers can earn and sell PECs to IOUs. For solar PV installed before December 31, 2015, 2.4 PECs are equal to 1 kWh. For solar PV installed after that, 1 PEC is equal to 1 kWh. Customer-maintained distributed renewable energy systems also receive an additional 0.05 PECs.
Revolving Loan Program	Nevada Energy Office	It provides low interest (3%) loans for renewable energy projects over a maximum of 15 years. The minimum loan amount is $100,000 and a maximum loan amount is $1,000,000 for an energy development project.
Renewable Energy Tax Abatement	Nevada State Office of Energy	Nevada State Office of Energy offers two types of tax abatements for qualifying facilities: sales and use tax abatement and property tax abatement. Qualifying facilities include solar energy facilities with a minimum **10 MW** capacity or generating 25,840,000 Btus of process heat, and facilities planning to be in operation for 10 years. These facilities based on population of their location are required to meet certain job creation, job quality and wage requirements. Sales and Use tax abatement: this reduces sales and use tax for businesses to 2.6% for three years. Property tax abatement: 55% abatement is applicable for 20 years on real and personal property tax.
Renewable Energy Systems Property Tax Exemption	Nevada Department of Taxation	This provides 100% tax exemption on property tax of renewable energy systems used for generating electricity or to heat or cool a building or to heat or cool water in a building or adjacent building or irrigation system. This tax exemption is applicable for all years after the installation.

UTILITY INCENTIVES

NV Energy has rebates for customers above and below 25 kW based on whether they are residential/ commercial/industrial customers or low income/ nonprofit/ public entity customers.

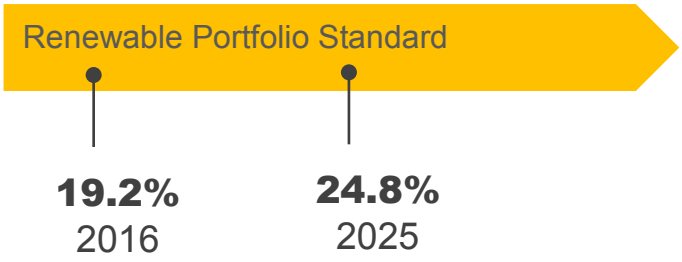
Utility	Incentive	Limitations
NV Energy – Renewable Generations Rebate Program	$0.1475 / watt-AC rebate for Residential/Commercial/Industrial (<25 kW) systems $ 0.0159 / kWh rebate for Low Income/ Nonprofit/ Public Entity (< 25 kW) systems $0.2950 / watt-AC rebate for Residential/Commercial/Industrial (>25 kW < 500 kW) systems $0.0317 / kWh rebate for Low Income/ Nonprofit/ Public Entity (> 25 kW < 500 kW) systems	Maximum incentive for systems **<25 kW** is 50% of the total cost. Systems **>25 kW** and **<500 kW** receive PBI quarterly for five years based on actual system production. All equipment must meet required code, standards and warranty requirements. The program expires on December 31, 2021

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Public Utility Commission of Nevada Renewable Portfolio Standard	http://puc.nv.gov/Renewable_Energy/Portfolio_Standard/
	Public Utility Commission of Nevada: Portfolio Energy Credits	http://puc.nv.gov/Renewable_Energy/RPS/PEC_Trading_Program/
Net metering and interconnection	Public Utility Commission of Nevada: Net Metering Factsheet	http://puc.nv.gov/uploadedFiles/pucnvgov/Content/Consumers/Be_Informed/Fact_Sheet_Net_Metering.pdf
	Nevada Power Company: Interconnection Standard	https://www.nvenergy.com/company/rates/snv/rules/images/Rule_15_South.pdf
Programs and incentives	DSIRE Database: Renewable Energy Systems Property Tax Exemption	http://programs.dsireusa.org/system/program/detail/158
	NVSOE: Renewable Energy Tax Abatement	http://energy.nv.gov/Programs/Renewable_Energy_Tax_Abatements/
	NVSOE: Revolving Loan Program	http://energy.nv.gov/Programs/Revolving_Loans_for_Renewable_Energy/
Utility incentives	NV Energy – Renewable Generations Rebate Program	https://www.nvenergy.com/renewablesenvironment/renewablegenerations/index.cfm

New Hampshire



Carve-out: Solar 0.3% of customer load by 2024
Tracking system: New England Power Pool Generation Information System (NEPOOL-GIS)

New Hampshire requires all electricity providers to meet a percentage of their customer load through renewable energy. Solar alternative compliance payment has been on the same level as other renewables since 2013.

New Hampshire has a Renewable Portfolio Standard (RPS) requirement of 24.8% by 2025. It has a solar carve-out, which is maintained annually at 0.3% from 2014 to 2025. New Hampshire passed a bill in May 2016 to increase renewable energy deployment and double its net energy metering capacity to 100 MW. Another bill was passed in March 2016 to streamline the interconnection process, creating fast track interconnection for systems smaller than 100 kW. Group net metering legislation allows community solar projects to be implemented. New Hampshire Public Utilities Commission's (NHPUC) administers a rebate program for commercial and industrial customers.

NET METERING

In May 2016 a bill doubled the state net metering cap to 100 MW. 50 MW was allocated to four electric distribution companies while another 50 MW was allocated to the three investor-owned utilities (IOUs). 80% of each utility's share is reserved for small customer generators up to 100 kW, and 20% of each utility's share is reserved for large customer generators between 100 kW and 1 MW.

The 2016 bill also directed the NHPUC to develop new alternative NEM tariffs within the next ten months. Until these tariffs are approved, 50 MW of capacity would be made available to eligible customer-generators. If a utility passes its cap limit before alternative NEM tariffs are adopted they can continue to interconnect using temporary NEM tariffs under the same terms and conditions as net metering under the 100 MW cap. The bill requires each utility's NEM tariff to be identical with respect to rates, rate structure, and charges, applicable to a customer for its services from the utility. Current NEM tariffs would be available until the end of December 2040. Net excess generation credits do not expire and can be reimbursed at the end of the annual year at the utility's avoided cost rate.

System size limit: 1 MW

Aggregate cap: 100 MW

Credit: Excess generation carried forward as kilowatt-hour credit, may receive avoided cost rate payment at the end of the year

RECs: Customers retain ownership of RECs

Meter Aggregation: Virtual net metering is allowed

INTERCONNECTION

Interconnection procedures differ for large and small customer-generators. Large customer generators are governed by the utility's interconnection practices. The small customer-generator interconnection provisions guided by the NHPUC include timelines for the application process and inspection process, and guidance for technical studies and analysis (if necessary). All projects >10 kW undergo a witness test unless waived by the distribution utility. For small customer generators a single meter measures the inflow and outflow of electricity whereas a bidirectional meter is used for large customer generators.

In March 2016 a bill outlining uniform and consistent procedures for interconnection queue process for net-metered customer-generators was passed. This was required to be implemented by the three state IOU's within 30 days of the date of issue (see below).

Eligible Systems	Type of Interconnection
≤10 kW	Required to meet minimum application requirements only
>10 kW and ≤100 kW	Required to meet minimum application requirements and complete a supplemental review agreement
>100 kW and ≤1 MW	Meet extensive set of requirements

System capacity limit: 1 MW

Liability insurance: Property insurance or comprehensive personal liability insurance not required, but an indemnity agreement is generally required

External disconnect switch: Not required for inverter-based systems complying with the IEEE 1547 & UL 1741 technical standards

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are allowed in New Hampshire.

COMMUNITY SOLAR

NHPUC permits group net metering, which allows practicing community solar. A customer generator is allowed to be a group host for a group of customers who are not generators. The kWh credits generated by a host system can be shared within the group under a contract arrangement. Upgrade costs to accommodate billing for group net metering are to be borne by the group host. For more information on local community solar programs please contact local utilities and service providers.

STATE INCENTIVES

Program	Administrator	Incentive
Commercial & Industrial Solar Incentive Program	New Hampshire Public Utilities Commission	Category 1 (solar electric systems rated less than or equal to 100 kW) - Rebate at $0.70/Watt is offered for new solar electric facilities which apply prior to September 1, 2016. This rebate is $0.65 for new solar electric facilities which apply after September 1, 2016. Category 2 (solar electric systems rated more than 100 kW and less than 500 kW); Rebate at $0.55/Watt is offered for new solar electric facilities.
Enterprise Energy Fund Loans	New Hampshire Community Development Finance Authority (NHCDA)	The Enterprise Energy Fund offers first-come, first-serve low-interest loans to businesses and nonprofit organizations to help finance renewable energy projects. Interest rates range between 2% to 4% depending on the type of organization and length of loan period.
Property Tax Exemption for Renewable Energy (Local Option)	New Hampshire Office of Energy and Planning (NHOEP)	New Hampshire permits cities and towns to offer exemptions from residential property taxes for solar system installations. Currently 103 cities in New Hampshire offer such exemptions.

UTILITY INCENTIVES

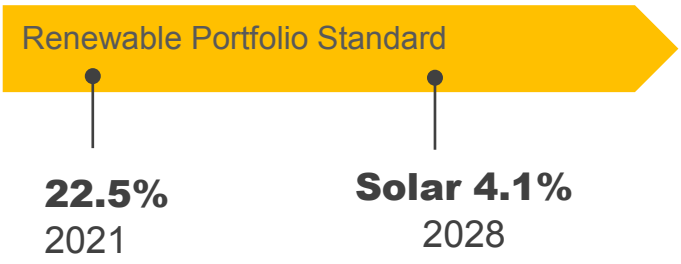
Utility	Incentive	Limitations
New Hampshire Electric Co-op Solar Photovoltaic Incentive Program	$0.25/W rebate for residential systems	Capped at $1,375
	$0.25/W rebate for commercial/government systems	Capped at15% of the system cost or $10,000; **≤1 MW**

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	NHPUC Renewable Portfolio Standard Program	http://www.puc.state.nh.us/Sustainable%20Energy/Renewable_Portfolio_Standard_Program.htm
Net metering and interconnection	NHPUC electric orders on sustainable energy (contains net metering and interconnection orders)	https://www.puc.nh.gov/Regulatory/Orders/2016orders/2016%20Elec%20Orders.html
	NHPUC rules on sustainable energy (contains net metering rules)	https://www.puc.nh.gov/Regulatory/rules.htm
	Net metering rules implemented in House Bill 1116 (May 2016)	http://www.gencourt.state.nh.us/bill_status/billText.aspx?id=293&txtFormat=html
	Simplified New Hampshire Utility Interconnection Requirements	https://www.nh.gov/oep/energy/saving-energy/documents/solar-permitting-guide-appendix-d.pdf
	NHPUC Order Approving Net Metering Program Capacity Allocation Procedures	https://www.puc.nh.gov/Regulatory/Docketbk/2015/15-271/ORDERS/15-271_2016_03-22_ORDER_25874.PDF
Community solar	NHPUC Group net metering	https://www.puc.nh.gov/Sustainable%20Energy/GroupNetMetering.html
Programs and incentives	NHPUC Commercial & Industrial Solar Incentive Program	https://www.puc.nh.gov/Sustainable%20Energy/RenewableEnergyRebates-CI.html
	NHCDFA Enterprise Energy Fund Loans	http://www.nhcdfa.org/energy-efficiency/for-businesses
	NHOEP Renewable Energy Property Tax Exemption	https://www.nh.gov/oep/energy/saving-energy/incentives.htm
	New Hampshire Electric Co-op: Commercial Renewable Energy	http://www.nhec.com/energysolutions/renewableenergy_business.php

New Jersey



Carve-out: Solar 4.1% retail electricity sales by 2028; offshore wind 1,100 MW
Tracking system: PJM-Generation Attribute Tracking System (PJM-GATS)

New Jersey's investor-owned utilities (IOUs) and retail electric suppliers are required to source a percentage of their electricity sales from qualified renewable energy resources. The renewable resources are divided into two classes: Class I contains newer technologies such as wind and solar, Class II resources include hydro and waste-to-energy.

New Jersey's solar market growth is tied to the performance of its competitive Solar Renewable Energy Certificate (SREC) market. It has experienced decreased installations due to SREC oversupply. The market is an important consideration since SRECs play a large role in the economics of solar projects in New Jersey. Customers of the four regulated utilities under the Board of Public Utilities may apply for solar loan programs under the utilities' solicitations.

NET METERING

New Jersey's investor-owned utilities (IOUs), energy suppliers, and select competitive municipal utilities and electric cooperatives to over net metering to retail customers with renewable generation.

System size limit: Energy production of the system does not exceed property's annual on-site energy demand

Aggregate cap: Evaluated when 2.5% of utility's peak demand is met

Credit: Net excess generation is credited at the utility retail rate

RECS: Customers retain ownership of RECs

Meter aggregation: Public entities (e.g., state and local governments, school districts, local agencies) can aggregate meters; third-party meter aggregation is allowed

INTERCONNECTION

New Jersey's Interconnection standards apply to all electric distribution utilities, except for a few municipal utilities and electric cooperatives. All Class I renewable resources are eligible for interconnection, which are separated into three tiers as below.

Eligible Systems	Type of Interconnection
Inverter-based systems ≤10 kW	Level 1 Fast track interconnection
Certified inverter-based systems >10 kW and ≤2 MW	Level 2
Other systems that do not qualify for levels 1 and 2	Level 3 Additional reviews

System capacity limit: Energy production of the system does not exceed property's annual on-site energy demand

Insurance requirements: Additional liability insurance is not required

External disconnect switch: Not required for inverter-based systems <2 MW that meet technical standards

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are allowed in New Jersey.

COMMUNITY SOLAR

New Jersey currently does not have a statewide community solar policy or program. Municipalities, schools, and other public entities can aggregate meters and provide electricity to their buildings. Utilities and developers may offer community solar.

STATE INCENTIVES

Program	Administrator	Incentive
Solar Energy Sales Tax Exemption	New Jersey Division of Taxation	All solar equipment is 100% exempt from the state sales tax.
Solar Energy Property Tax Exemption	New Jersey Department of the Treasury	100% of the value added to the property by a renewable system is exempt from property tax

UTILITY INCENTIVES

The Board of Public Utilities directs the four regulated utilities to develop solar financing programs. Three regulated distribution companies to offer SREC-based financing to their customers with the Board of Public Utilities' approval, while PSE&G has a separate loan program.

Utility Program	Incentive	Limitations
Jersey Central Power and Light, Rockland Electric, and Atlantic City Electric: SREC-Based Financing Program (Fourth Solicitation)	Segment 1: net-metered systems **≤50 kW** Segment 2: net-metered systems **>50 kW** (no limit) Segment 3: grid supply/ utility scale systems on landfills/brownfields/ historical fills	For segment 2, the total requested capacity of the three utilities is as follows: Jersey Central Power and Light: 10.365 MW Atlantic City Electric: 7.725 MW Rockland Electric: 1 MW
Public Service Electric & Gas Solar III Loan Program (Fifteenth Solicitation)	10-year loan term for customers of different segments: Small Non-Residential Segment (**≤ 150 kW**) Large Non-Residential Segment (**> 150kW** and **≤ 2MW**) Residential Segment Aggregated Residential Segment	Total 97.5 MW capacity

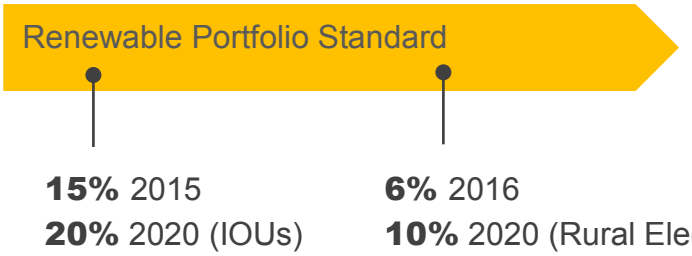
RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	New Jersey Board of Public Utilities: RPS Background	http://www.njcleanenergy.com/renewable-energy/program-activity-and-background-information/rps-background-info
	New Jersey Board of Public Utilities: SREC Registration Program	http://www.njcleanenergy.com/renewable-energy/programs/solar-renewable-energy-certificates-srec/new-jersey-solar-renewable-energy

Net metering and Interconnection	New Jersey Board of Public Utilities: Net Metering and Interconnection	http://www.njcleanenergy.com/renewable-energy/programs/net-metering-and-interconnection
	New Jersey Board of Public Utilities: Interconnection Utility Contacts	http://www.njcleanenergy.com/renewable-energy/programs/net-metering-and-interconnection/interconnection-forms
Programs and incentives	New Jersey Division of Taxation: Sales Tax Exemption Administration	http://www.state.nj.us/treasury/taxation/pdf/pubs/sales/su6.pdf
	New Jersey Department of the Treasury: Application for Certification of Renewable Energy Systems	http://www.state.nj.us/treasury/taxation/pdf/other_forms/lpt/cres.pdf
	New Jersey Board of Public Utilities: Utility Financing Programs	http://www.njcleanenergy.com/renewable-energy/programs/utility-financing-programs/utility-financing-programs
	Navigant Consulting: SREC-Based Financing Program Request for Proposals	https://njsolarprogram.navigant.com/SitePages/Home.aspx
	PSE&G: Solar Loan Program	https://www.pseg.com/home/save/solar/index.jsp
Others	Board of Public Utilities: New Jersey's Clean Energy Program	http://www.njcleanenergy.com/

New Mexico



Carve-out: 4% must come from solar energy for IOUs
Tracking system: Western Renewable Energy Generation (WREGIS)

New Mexico requires investor-owned utilities (IOUs) to have a 20% Renewable Portfolio Standard (RPS) requirement with a 4% solar carve-out and 0.6% carve-out for distributed resources, by 2020. Rural electric co-ops have a 10% RPS requirement by 2020.Net metering regulations allow customers with solar systems below 80 MW to be compensated for net excess generation and do not have a statewide cap. Less stringent interconnection processes exist for systems up to 2 megawatts (MW).

NET METERING

Net metering rules developed by the New Mexico Public Regulation Commission (NMPRC) apply to the state's IOUs and electric cooperatives. These require utilities to compensate customers with net-metered systems below 80 MW. This compensation can be provided by crediting the customer account or paying the customer for the net excess generation supplied to the utility. Any remaining credits can be carried over indefinitely and are paid to the customer at the end of his term.

The state law requires utilities to bill net metered customers in accordance with rate structures which would be implemented on them if they were not interconnected. Customers are compensated at the utility's single period of time-of-use energy rate. The utility energy rates are required to reflect the cost savings from avoiding the transmission, distribution, and transformation loss for different voltage levels.

Municipal utilities not governed by NMPRC rules can make their own net metering programs. Farmington Electric, a municipal utility, offers net metering to residential customers in accordance with NMPRC rules. However, it is limited only to systems up to **10 kilowatts** (kW).

System Capacity Limit: **80 MW**

Aggregate Cap: Not specified

Credits: Net excess generation is credited at avoided cost rate or excess kWh generated are credited to the account and rolled over indefinitely

RECs: Customer-generator retains the RECs

Meter Aggregation: Not addressed for solar power

INTERCONNECTION

Interconnection standards are applicable to IOUs and rural electric co-ops in New Mexico. Interconnection processes are dependent on system size (see below). Standards require compliance of all systems with local, state and national electrical and utility codes and standards, including NEC, IEEE, and UL standards. A reasonable interconnection fee dependent on system size is applicable for interconnected systems.

System Size	Eligibility for Interconnection Type
≤10 kW	Simplified process
>10kW and <2 MW	Fast track process
>2MW and ≤10 MW	Eligible for full interconnection study
>10 MW	Follow case specific study process

System Capacity Limit: 80 MW

Liability insurance: Not required for systems up to 250 kW unless ordered by NMPRC. A utility may require liability insurance within reason for systems above 250 kW

External disconnect switch: Not required for inverter-based systems up to 10 kW. For systems above 10 kW, requirement is dependent on utility discretion

THIRD PARTY OWNERSHIP

Third-party ownership of solar systems is limited to systems generating 120% of the average annual electricity consumption of the host at the site.

COMMUNITY SOLAR

A bill was introduced in the senate in 2013 to provide for community solar facilities to qualify as distributed generation facilities. However, there has not been any progress after its introduction. For more information on local community solar programs please contact local utilities and service providers.

STATE INCENTIVES

Program	Administrator	Incentive
Solar Market Development Tax Credit	New Mexico Energy, Minerals and Natural Resources Department, Taxation and Revenue Department (NMEMNRD)	The tax credit pays up to 10% of the purchase and installation costs or a maximum of $9,000 for solar PV and hot water systems that are operational after January 1, 2009. The tax credit which remains unused can be carried forward for a maximum of ten consecutive years. As of August 2016 the program for PV systems has finished since the 2016 allotment of tax credits has been reached.
Advanced Energy Gross Receipts Tax Deduction and Advanced Energy Compensating Tax Deduction	New Mexico Taxation and Revenue Department (NMTRD)	The revenue from sales and leases of a qualified generating facility (solar PV or thermal electric generating facilities of 1 MW or more that began construction on or after July 1, 2010 but not later than December 31, 2015) are deductible from the gross receipts tax amount. This amount can also be deducted while calculating the compensating tax. The maximum combined benefit allowed from approved advanced energy tax credits[8], advanced energy gross receipts tax deductions and advanced energy compensating tax deductions for a "qualified generating facility" is not allowed to exceed $60,000,000. These deductions are available for a 10-year period for purchases and 25-year period for leases. This is calculated starting from the year development of the facility begins and expenditures are made or until the maximum combined benefit has been used.
Property Tax Exemption for Solar Systems	New Mexico Energy, Minerals and Natural Resources Department (NMEMNRD)	Roof top scale solar energy systems are exempted from calculation of the property tax when installed until the property is sold. When the property is sold the solar improvements can be included while assessing the property tax. Solar energy systems are defined as systems providing space heat, hot water or electricity to the property. The solar panels used in this system cannot be a window, a dark-colored water tank exposed to the sunlight, or a non-vented Trombe wall.
Renewable Energy Tax Credit	New Mexico Energy, Minerals and Natural Resources Department (NMEMNRD)	Tax credit is provided for up to ten years to personal or corporate income tax obtained from revenues generated by a solar PV or thermal electric generation facility which started operation on or before January 1, 2018. Tax incentive offered varies annually: • Year 1: $0.015 per kWh • Year 2: $0.02 per kWh • Year 3: $0.025 per kWh • Year 4: $0.03 per kWh • Year 5: $0.035 per kWh

[8] Advanced energy tax credits for personal and business use expired on 12/31/2015.

		• Year 6: $0.04 per kWh • Year 7: $0.035 per kWh • Year 8: $0.03 per kWh • Year 9: $0.025 per kWh • Year 10: $0.02 per kWh A solar generating facility is eligible for tax credits for the first 200,000 MWh annually. The program (for personal and corporate tax credit) has a cap of providing tax credits for 2,000,000 MWh (for generating facilities including solar, wind and biomass) and an additional 500,000 MWh for solar facilities only.

UTILITY INCENTIVES

PNM and El Paso Electric offer a rebate to small, medium and large customers. Excel Energy has discontinued its solar rewards program in New Mexico for residential and commercial customers. Please check program websites for current availability and status.

Utility	Incentive	Limitations
PNM Performance-Based Solar PV Program	$0.025/kWh for systems **>1 kW to 10 kW**	Eight-year contract (currently not accepting applications)
	$0.025/kWh for systems **>10 kW** to **100 kW**	Eight-year contract (currently not accepting applications)
	$0.02/kWh for systems **>100 kW to 1 MW**	Contracts terminate on December 31, 2020 (accepting applications—2,000kW available as of August 2016)
El Paso Electric Company Renewable Energy Certificate Purchase Program	$0.02/kWh for systems **<10 kW**	Credit balance up to $30 applied to the customer bill and credit of greater than $30 directly paid to customer.
	$0.02/kWh for systems **10 kW** to **100 kW** prevailing market price (will not exceed price for 10-kW to 100-kW systems) for systems **100 kW** to **1 MW**	

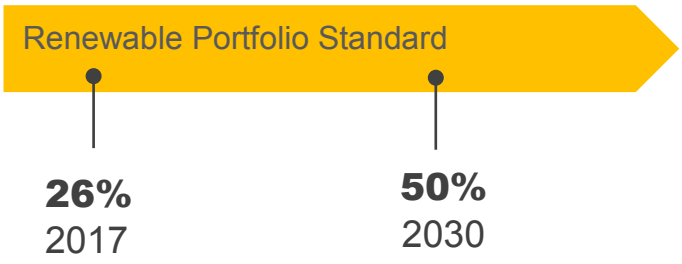
RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	NMPRC Renewable Portfolio Standard	http://www.nmprc.state.nm.us/utilities/renewable-energy.html
Net metering and interconnection	NMPRC issuance governing net metering rule	http://164.64.110.239/nmac/parts/title17/17.009.0570.htm
	NMPRC issuance governing small generator interconnection standards	http://164.64.110.239/nmac/parts/title17/17.009.0568.htm
	NMPRC net metering FAQs	http://www.nmprc.state.nm.us/consumer-relations/docs/net-metering-faqs.pdf
Community solar	Community Solar	https://www.nmlegis.gov/Sessions/13%20Regular/bills/senate/SB0394.html
Programs and incentives	NMEMNRD Solar Market Development Tax Credit	http://www.emnrd.state.nm.us/ECMD/CleanEnergyTaxIncentives/SolarTaxCredit.html
	NMTR Advanced Energy Gross Receipts Tax Deduction and Advanced Energy Compensating Tax Deduction	http://www.tax.newmexico.gov/Tax-Professionals/tax-credits-overview.aspx
	NMEMNRD Property Tax Exemption for Solar Systems	http://www.emnrd.state.nm.us/ECMD/CleanEnergyTaxIncentives/PropertyTaxExemption.html
	NMEMNRD Renewable Energy Production Tax Credit	http://www.emnrd.state.nm.us/ecmd/CleanEnergyTaxIncentives/ProdTaxCredit.html
	NM Statute 7-9-114: Advanced energy deduction; gross receipts and compensating taxes	http://law.justia.com/codes/new-mexico/2011/chapter7/article9/section7-9-114
Utility Incentive Programs	PNM - Performance-Based Solar PV Program	https://www.pnm.com/solar

	El Paso Electric Company - REC Purchase Program	https://www.epelectric.com/nm/residential/renewable-energy-interconnection-1
	Xcel Energy - Solar*Rewards Program	https://www.xcelenergy.com/Programs_and_Rebates
	NMPRC Renewable Energy Related Programs	http://www.nmprc.state.nm.us/utilities/
Other	NM Energy, Minerals and Natural Resources Department – 2010 Legislative Session Clean Energy Bills	http://my.solarroadmap.com/userfiles/Source_NM-PPA-Legislation-Synopsis.pdf

New York



Carve-out: 8.44% of annual incremental requirement to be customer-sited
Tracking system: New York Generation Attribute Tracking System (NYGATS)

New York passed a new Clean Energy Standard requiring investor-owned utilities (IOUs) to procure 50% of the state's electricity from clean energy sources by 2030. This builds on the state's expired Renewable Portfolio Standard (RPS) of 30% by 2015.

New York takes a central procurement approach to reach its RPS goals, mandating New York State Energy Research and Development Authority (NYSERDA) to procure most of the renewable energy through production-based incentives and other programs. Its net metering program allows for up to 2 MW of capacity and has established community and remote net metering to encourage growth of shared solar within the state. The statewide solar incentives program, NY-Sun, offers loans and grants for non-residential customers with systems up to 200 kW.

NET METERING

The state's major investor-owned utilities are required to offer net metering to their retail customers. Although some utilities have reached the 6% capacity limit, the New York Public Service Commission (PSC) has ordered utilities to continue accepting applications until a resolution has been reached regarding net metering under the New York Reforming the Energy Vision (REV).[9]

System size limit: Solar: **25 kW** for residential; **100 kW** for farms; **2 MW** for non-residential.

PSEG Long Island: **25 kW** for residential solar, **2 MW** for non-residential solar

Aggregate cap: 6% of utility's 2005 demand for solar

PSEG Long Island: **150 MW** for solar

Credit: Utility retail rate; PSEG: Time-of-Use (TOU) rates available for TOU customers

RECs: Not addressed

Meter aggregation: Remote net metering is allowed for non-residential and farm-based customers with solar. Utilities must allow customers to assign credits from multiple host accounts to one satellite account, which should not exceed **2 MW**.

[9] REV is the governor's comprehensive energy strategy being designed to accommodate clean energy, resiliency, and economic viability.

INTERCONNECTION

In March 2016, New York updated its standardized interconnection requirements and application process for distributed generators to include systems ≤5MW, whereas the previous standards only addressed systems up to 2 MW. Each utility maintains a web-based system to provide current information on the status of its distributed systems.

Eligible Systems	Type of Interconnection
Inverter-based systems ≤50 kW	Expedited 6-step process
Certified inverter-based systems >50 kW and ≤300[10]	Expedited 6-step process if approved by the utility
>50 kW and ≤5 MW	Basic 11-step process for interconnection; $750 application fee

System capacity limit: 5 MW

Insurance requirements: Not required

External disconnect switch: Not required for inverter-based systems <25 kW; required for all other systems

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are allowed in New York.

COMMUNITY SOLAR

Community net metering allows multiple customers (minimum 10 members) subscribe and receive credits to the electricity produced from off-site renewable generation facility ≤2MW. The group may include a single individual subscriber that has demand >25 kW, who will be limited to 40% of the total facility's output. Other subscribers will be limited to individual demand <25 kW and their total energy use must aggregate to at least 60% of the facility's output.

Community Solar NY is an effort under NY-Sun. The first phase of shared renewables effort targeted low-income residential customers and Community DG Opportunity Zones as designated by the utilities. Under this program, projects may interconnect beginning May 1, 2016. Each project must have at least ten members and each member must be allocated at least 1 MWh per year. Projects participate in either the Residential/Small Commercial Program (<200 kW) or the Commercial/Industrial Program (>200 kW) based on size.

NYSERDA supports Solarized campaigns organized by local communities by providing technical assistance, marketing, and funding.

K-Solar is a partnership between NYSERDA and the State Education Department. K-Solar provides school districts with free tools and expertise to bring solar energy to their facilities.

[10] Systems proposed to be installed in underground network areas may be required to submit additional information and may subject to a longer review process.

STATE INCENTIVES

Program	Administrator	Incentive
NY-Sun Loan Program	Energy Finance Solutions on behalf of New York State Energy Research and Development Authority	PV installations **≤200 kW** performed by a participating Solar Electric Installer are eligible for this program. Residential customers can qualify up to $13,000, or up to $25,000 loans with higher cost-effectiveness standards. The repayment periods can be 5, 10, or 15 years and should be within the expected life of the installation. This loan provides a standard loan at interest rate of 3.99%, or 3.49% if repaid through automatic bank withdrawals. Small business and not-for-profit organizations can obtain low interest standard loans up to $100,000, or on-bill recovery loans up to $50,000. These organizations also have an option to financing systems through a traditional loan structure. Financing up to $100,000 is provided to eligible customers at below market interest rates. NYSERDA provides 50% of the project cost up to $50,000 at 2% interest rate and the participating lender provides the rest of the loan at market rates.
NY Green Bank		Solar projects in the state can apply for loans through NY Green Bank open solicitations. The expected range of project is between $5 million - 50 million.
NY-Sun PV Incentive Program (Residential, Low-Income, and Small Business)	New York State Energy Research and Development Authority	This program began in 2010 and expires December 29, 2023. The program gives cash incentives for installation of approved, grid-connected residential PV systems **≤ 25 kW** and non-residential systems **≤ 200 kW**. It was reestablished in 2014 with the goal of supporting 3.175 GW of installed capacity by 2023. Separate MW budgets have been allocated for three different regions of the state: Long Island, Con Edison, and Up State. The incentives available decrease as each “MW Block” is completed within a region. Please see the real-time MW Block Dashboard for the latest incentive levels. Low-to-moderate income households (household income that is less than 80% of the State Median Income or Area Median Income, whichever is greater) receive double the standard incentive amount for systems **≤ 6 kW**.

NY-Sun Commercial/Industrial Incentive program	New York State Energy Research and Development Authority	This program began in 2015 and accepts applications through December 29, 2023. It provides incentives for installation of non-residential new grid-connected solar PV systems **>200 KW** per electric meter. Separate MW budgets have been allocated for three different regions of the state: Con Edison and Rest-of-State.
Tax Exemptions	New York State Department of Taxation and Finance; New York State Office of Real Property Tax Services; or locally administered	Residential and non-residential solar systems for private use are exempt from NY State sales and compensating use taxes. Residential solar energy systems equipment and services are exempt from local sales tax in New York City. Commercial, Industrial, Nonprofit, Residential, Schools, Multifamily Residential, Institutional sectors can obtain property tax abatement for PV system expenditures at a reduced rate. Systems installed from January 1, 2014 to December 31 by these users in New York City can obtain property tax abatement for PV system expenditures at 5% of the system expenditures per year for four years.

UTILITY INCENTIVES

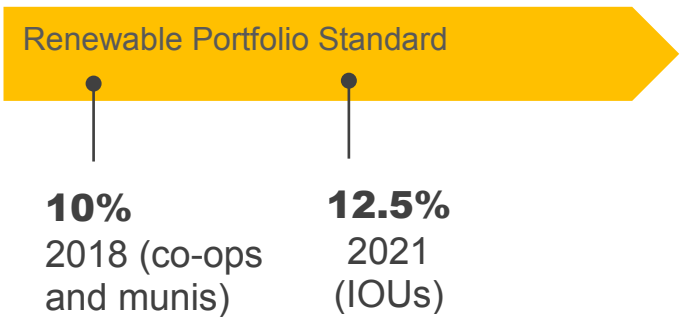
Utility	Incentive	Limitations
PSEG Long Island	$0.1688/kWh FIT	Applicable for systems **>100 kW** and **<2 MW**. PSEG Long Island FIT II offers a 20-year contract to support up to 100 MW of new solar generation. There have been no plans to continue the program's third phase.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and Interconnection	Department of Public Service: NY Net metering and interconnection regulations	http://www3.dps.ny.gov/W/PSCWeb.nsf/All/DCF68EFCA391AD6085257687006F396B?OpenDocument
	PSEG Long Island - Net Metering	https://www.psegliny.com/page.cfm/Efficiency/Renewables/Solar/NetMetering
Community solar	Community Solar NY	https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun/Communities/Shared-Solar
Programs and incentives	NYSERDA: NY-Sun Loan Program	https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun/Customers/Solar-Financing-Options
	NY Green Bank	https://greenbank.ny.gov
	NYSERDA: NY-Sun PV Incentive Program	https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun
	Department of Taxation and Finance: Tax Exemptions	https://www.tax.ny.gov/research/property/assess/manuals/vol4/pt1/sec4_01/sec487.htm
	Solar Energy System Equipment Credit	https://www.tax.ny.gov/pit/credits/solar_energy_system_equipment_credit.htm
	PSEG Long Island: Feed-In Tariff	https://www.psegliny.com/page.cfm/FIT
Others	Sustainable CUNY: NY Solar Map	https://nysolarmap.com

North Carolina



Carve-out: Solar: 0.2% by 2018
Tracking system: North Carolina Renewable Energy Tracking System (NC-RETS)

North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard (REPS) requires that investor-owned utilities(IOUs) must source12.5% of their retail sales from renewable energy by 2021; electric cooperatives and municipal utilities must source 10% of their total retail sales by 2018.

North Carolina has fast tracked interconnection processes in place for systems **>20 kW** and **≤2 MW**. Currently no third-party ownership is allowed and no community solar policies and programs exist in North Carolina. State incentives consist of tax credits and exemptions, while Tennessee Valley Authority (TVA) offers incentives to solar PV customers.

NET METERING

North Carolina's net metering policies were approved by the North Carolina Utilities Commission (NCUC) in 2005. The rules apply to the state's three IOUs: Duke Energy, Progress Energy and Dominion North Carolina Power. For systems larger than 100 kW in capacity, IOUs may impose standby charges consistent with approved standby rates applicable to other customer-owned generation.

System size limit: **1 MW**; Blue Ridge Electric Membership Corp: **25kW**

Aggregate cap: Not specified

Credit: Net excess generation is credited at the retail rate;

For Blue Ridge Electric Membership Corp, NEG is credited at retail rate. Retail rate for net metering customers is lower than retail rate for general residential customers. Credits roll over until May 31 of each year. Remaining credit is granted to utilities without customer compensation

RECs: Utilities owns RECs unless customer chooses to net meter under a time of use tariff with demand charges

Meter aggregation: Meter aggregation is not addressed

INTERCONNECTION

The North Carolina Utility Commission (NCUC) standards (following FERC Order 792) uses a three-tiered approach to simplify the interconnection process:

Eligible Systems	Type of Interconnection
Systems **≤20 kW**	Inverter Process
Systems **>20 kW** and **≤2 MW**	Fast Track Process
Systems that fail to qualify for the Fast Track Process	Study Process

System size limit: Not specified

Liability insurance: Varies by system size and/or type; levels established by NCUC. Non-residential generators proposing to interconnect a system **≤250 kW** are required to carry comprehensive general liability insurance in the amount of at least $300,000. Non-residential generators proposing to interconnect a system that is **>250 kW** are required to carry comprehensive general liability insurance in the amount of at least $1,000,000.

External disconnect switch: Not required for inverter-based systems **≤10 kW**; utility's discretion for all other systems

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are not allowed in North Carolina.

COMMUNITY SOLAR

There are currently no statewide community solar policies and programs in North Carolina. Certain utilities like Piedmont Electric Member Corp offer community solar programs. Please check with local utilities for participation in community solar programs.

STATE INCENTIVES

Program	Administrator	Incentive
Renewable Energy Tax Credit (personal)	NORTH CAROLINA Department of Revenue	The tax credit equal to 35% of the cost of eligible renewable energy property constructed, purchased or leased by a taxpayer and placed into service in North Carolina during the taxable year. There are no stated size limits for systems. There is a maximum of 50 kWh battery storage capacity per kW of hydro generator capacity (DC rated); and a maximum of 35 kWh battery storage capacity per kW for other technologies.
Renewable Energy Tax Credit (corporate)	North Carolina Department of Revenue	The tax credit is equal to 35% of the cost of eligible renewable energy property constructed, purchased or leased by a taxpayer and placed into service in North Carolina during the taxable year. The maximum tax credit is $2.5 million per installation.
NC Green Power		Production Based Incentive (PBI) is available for commercial, industrial, local and state government, nonprofit, residential, schools, agricultural, and institutional users. For Photovoltaics (PV) **≤5 kW**: $0.06/kWh (plus approximately $0.04/kWh from utility); PV **>5 kW**: must enter bid process. Net metered customers not eligible in this program.
Tax exemptions	North Carolina Department of Revenue	The state exempts 80% of the appraised value (100% for residential system) of a PV system from property tax.

UTILITY INCENTIVES

Utility	Incentive	Limitations
TVA: Green Power Providers program	First 10 years: $0.02/kWh above the retail rate; an additional 10 years: retail rate	**<50 kW**
TVA: Renewable Standard Offer program	10-, 15-, or 20-year contracts at a rate that escalates 5% annually	**50 kW - 20 MW**
TVA: Solar Solutions Initiative	Additional $0.04/kWh for the first 10 years	**50 kW - 1 MW** Total capacity: 20 MW

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Renewable Energy and Energy Efficiency Portfolio Standard (REPS)	http://www.ncuc.commerce.state.nc.us/reps/reps.htm
Interconnection standards	NCUC revised interconnection standards (May 2015)	http://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=bc4171f9-38ac-48ad-ba34-b02996856f60
Programs and incentives	TVA Renewable Energy Solutions	https://www.tva.gov/Energy/Renewable-Energy-Solutions
	TVA Distributed Solar Solutions	https://www.tva.gov/Energy/Renewable-Energy-Solutions/Distributed-Solar-Solutions
	TVA Green Power Providers	https://www.tva.com/Energy/Renewable-Energy-Solutions/Green-Power-Providers

North Dakota

Voluntary Renewable Energy Goal

10%
2015

Carve-out: None
Tracking system: Midwest Renewable Energy Tracking System (M-RETS)

North Dakota has net metering regulations for up to 100 kW for customers of investor-owned electric utilities. Net metering is credited at the avoided-cost rate for utility customers. The state also offers property tax exemptions for solar systems.

NET METERING

Net metering regulations are applicable to investor owned utilities (IOUs), while municipal utilities are exempt from these regulations. Utilities are permitted to recover all costs associated with a customer's net metering system.

System capacity limit: 100 kW

Aggregate cap: Not specified

Credit: Net excess generation at the end of a monthly billing period is credited by the utility at avoided-cost rate

RECs: Renewable energy credits (RECs) associated with the customer's load are owned by net-metered customers while RECs associated with NEG are owned by the utility.

Meter aggregation: Not addressed

INTERCONNECTION

There are currently no specific interconnection standards in North Dakota.

THIRD PARTY OWNERSHIP

The status of third-party ownership in North Dakota is unclear.

COMMUNITY SOLAR

There are currently no statewide community solar policies in North Dakota.

STATE INCENTIVES

Program	Administrator	Incentive
Renewable Energy Property Tax Exemption	North Dakota Department of Commerce	Any locally-assessed solar energy device serving a new or existing building or structure, or a solar system that is part of a conventional energy system (only the renewable energy portion of the total system) is eligible for a local property tax exemption. This exemption can be applied during the 5-year period following installation. System owners are required to contact their local tax assessor or county director of tax equalization to apply this exemption.
Sales and Use Tax Exemption for Electrical Generating Facilities	Office of State Tax Commissioner	Electrical generating facilities with at least one single electrical generation unit having a capacity of **>100 kW** is exempt from sales and use taxes.

UTILITY INCENTIVES

There are currently no solar PV utility incentive programs in North Dakota.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net Metering	North Dakota Legislative Branch: Net Metering Regulation 1991	http://www.legis.nd.gov/information/acdata/pdf/69-09-07.pdf
Others	North Dakota Public Service Commission	http://www.psc.nd.gov/
	North Dakota Legislative Branch	http://www.legis.nd.gov/
	North Dakota State Energy Office	http://www.nd.gov/energyimpact/

Ohio

Renewable Portfolio Standard

12.5%
2026

Carve-out: 0.5% of total electricity generation must come from solar by 2026
Tracking system: Midwest Renewable Energy Tracking System (M-RETS) and PJM-Generation Attribute Tracking System (PJM-GATS)

Ohio's renewable portfolio standard (RPS) requires electric distribution utilities and electric services companies to generate a percentage of their electricity from renewables. Ohio froze its multi-year renewable ramp-up schedule of the Renewable Portfolio Standard (RPS) for two years in May 2014.

Ohio solar customers are eligible for real and personal property tax exemptions. The state also has a loan funding program for solar deployment. The state has simplified and expedited interconnection review procedures in place for systems **< 25 kW** and **< 5 MW** respectively. First Energy has Solar Renewable Energy Certificate (SREC) and Renewable Energy Certificate (REC) programs in place for its customers.

NET METERING

Electric distribution utilities are required to offer net metering to customers. The capacity limit is implied to be sized primarily to offset part or all of the customer's electricity demand.

System Capacity Limit: No limit specified

Aggregate Capacity Limit: No limit specified

Credit: Net excess generation are credited at the utility's unbundled generation rate; hospitals will be credited at the market value at the time of generation

RECS: Not addressed

Meter aggregation: Virtual net metering is allowed for state, municipal, and agricultural customers. Other customers may participate in virtual net metering as a "beneficial account" under a state, municipal, or agricultural host under certain conditions. Net excess generation from virtual net metering facilities is credited at the retail rate plus a declining percentage of the transmission and distribution charges billed to beneficial accounts

INTERCONNECTION

Three levels of review for the interconnection of Distributed Generation (DG) systems up to 20 MW in capacity.

Eligible Systems	Type of Interconnection
Inverter-based distributed generators **≤ 25 kW**	Level 1: Simplified review procedure that allows interconnection request reviewed within 15 business days and a standard interconnection agreement within 5 business days of determination
Inverter-based or synchronous systems **>25 kW** and **<5 MW**	Level 2: Expedited and supplemental review procedures; these systems must meet IEEE 1547 and UL 1741 standards
Inverter-based or synchronous systems **>5 MW** and **<20 MW** that do not qualify for Level 1 or 2	Level 3: Full interconnection process

System Capacity Limit: **20 MW**

Liability Insurance: Additional liability insurance beyond proof of insurance is not required by utilities

External Disconnect Switch: Not required

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are allowed in Ohio.

COMMUNITY SOLAR

There are currently no statewide community solar policies or programs in Ohio. Utilities and developers may offer community solar projects.

STATE INCENTIVE PROGRAMS

Program	Administrator	Incentive
Personal property taxes and real property tax exemptions	Ohio Development Services Agency (DSA) and local county commissioners	Commercial, IOUs, Municipal and cooperative utilities with qualified solar energy systems of **< 250 kW** in Ohio are exempt from public utility tangible personal property taxes and real property taxes. Qualified solar systems of **> 250kW** placed in service before Jan 1, 2017 are exempt from property tax for the life of the facility provided they pay $7000 per MW in lieu of taxes. Local county commissioners are allowed to require an additional payment as long as the overall payment does not exceed $9,000 per MW.
Energy Loan Fund	Ohio Development Services Agency	Commercial, Construction, Industrial, Local Government, Nonprofit, Schools, State Government, and Institutional entities with less than 500 employees can apply for low-cost financing for energy efficiency and renewable energy improvements. The system must demonstrate minimum 15% reduction in energy use as a result of project. The typical loan limit is $1million.

UTILITY INCENTIVE PROGRAMS

Utility Program	Incentive	Limitations
First Energy SREC and REC purchase	First Energy will periodically solicit proposals for RECs and SRECs	FirstEnergy will purchase 5,000 SRECs and 20,000 RECs in equal quantities each calendar year, from 2011 to 2020.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Ohio Public Utility Commission: Renewable Portfolio Standard	http://www.puco.ohio.gov/puco/index.cfm/industry-information/industry-topics/ohioe28099s-renewable-and-advanced-energy-portfolio-standard/#sthash.90ZSxRaY.dpbs
Net metering and interconnection	Ohio Public Utility Commission: Net metering	http://www.puco.ohio.gov/puco/index.cfm/be-informed/consumer-topics/net-metering-faq/#sthash.g0AjKxGY.Ll4q3IOS.dpbs
	Ohio Public Utility Commission: Interconnection standards	http://www.puco.ohio.gov/puco/index.cfm/be-informed/consumer-topics/interconnection-checklist/#sthash.V4iVQJqO.4wLYKw28.dpbs
Programs and incentives	Ohio Development Services Agency: Tax exemptions	https://development.ohio.gov/bs/bs_qepte.htm
	Ohio Development Services Agency: Energy Loan Fund	http://development.ohio.gov/bs/bs_energyloanfund.htm
	First Energy: SREC Program	https://www.firstenergycorp.com/content/fecorp/upp/oh/rec_procurements.html

Oklahoma

Voluntary Renewable Energy Goal

15%
2015

Carve-out: None
Tracking system: None

In 2010, Oklahoma adopted a 15% voluntary renewable energy generation goal by 2015. This goal has not been expanded or extended, which result in limited number of incentives to encourage solar growth in the state. Oklahoma's net metering program is available to all customers with no limit on the aggregate capacity. The state also offers tax incentives on zero-emission facilities, which indirectly helps solar generation. No solar incentives from utilities have been identified.

NET METERING

After November 1, 2014, utilities and regulated electric cooperatives can apply to the Oklahoma Corporation Commission for approval to charge a fixed fee to customer-generators who install net-metered distributed generation. Utilities and cooperatives are not required to purchase monthly net excess generation from customers. A customer-generator's net excess generation must be provided to the electric cooperative or utility at no charge.

System size limit: **100 kW** or less; 25,000 kWh/year or less.

Aggregate cap: Not specified

Credit: Not required to purchase monthly net excess generation from customers

RECs: Not addressed

Meter aggregation: Not addressed

INTERCONNECTION

Oklahoma Corporation Commission (OCC) has not adopted standardized interconnection procedures. Potential customer-generators should contact local cooperative/utility to learn more about specific terms and conditions as well as the application process.

System size limit: **100 kW** under terms and conditions for small power producer or cogenerator

Liability insurance: Not addressed

External disconnect switch: Required

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are not allowed in Oklahoma.

COMMUNITY SOLAR

There are currently no statewide community solar policies in Oklahoma.

STATE INCENTIVES

Program	Administrator	Incentive
Zero-Emission Facilities Production Tax Credit	Oklahoma Tax Commission	The program offers $0.0025/kWh - $0.0075/kWh for 10 years; amount varies depending on when the system is placed

UTILITY INCENTIVES

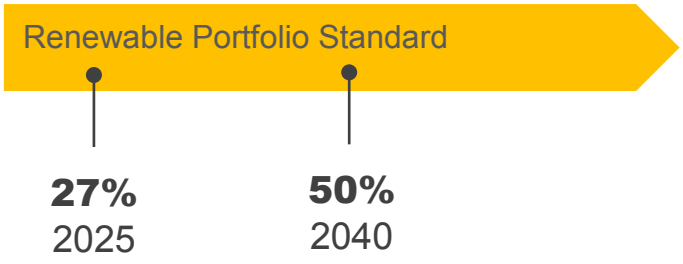
Please check with local utilities for midscale solar incentives.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and interconnection	Oklahoma Electric Cooperative Renewable Energy (Distributed Generation)	http://www.okcoop.org/DG
Other	Oklahoma Renewable Energy Council	http://www.okrenewables.org/

Oregon



Carve-out: 8% electricity generation capacity from community renewable energy projects
Tracking system: Western Renewable Energy Generation Information System (WREGIS)

Investor-owned utilities with 3% or more of Oregon's load must ensure a percentage of in-state retail sales come from renewables. The requirement increases from 5% by 2011 to 50% by 2040. Utilities with less than 1.5% of state load must meet a 5% RPS by 2025. Utilities with more than 1.5%, but less than 3% of state load must meet a 10% RPS by 2025. PV systems between 500 kW and 5 MW receive a RPS compliance multiplier of two.

All utilities in Oregon, with the exception of Idaho Power, must offer net metering to their retail customers up to 2 MW. The Energy Trust of Oregon (ETO) administers the public purpose funds and offers a wide range of solar incentives. ETO's Solar Electric program offers cash incentives to customers of PGE and Pacific Power for installing solar PV systems. Small utilities also offer a number of rebates and loans for solar PV installations. Oregon has a special solar requirement for public buildings which requires 1.5% of the total contract price of new construction or major renovation of a public building must go to solar energy technology.

NET METERING

All utilities in Oregon, with the exception of Idaho Power, must offer net metering to their retail customers.[11]

System size limit: PGE and PacifiCorp customers **2 MW** for non-residential, **25 kW** for residential; municipal, electric cooperative, and public utility district customers **25 kW** for non-residential, **10 kW** for residential

Aggregate cap: 0.5% of the utility's historical peak load for municipal utilities, electric cooperatives, and public utility districts; no limit for large investor-owned utilities

Credit: Net excess generation is credited at the retail rate

RECs: Customers retain ownership of RECs

Meter aggregation: Meter aggregation is allowed

[11] Idaho Power is subject to net metering rules established by the Idaho Public Utilities Commission.

INTERCONNECTION

All utilities in Oregon, with the exception of Idaho Power, follow standard interconnection rules for net-metered systems. Net-metered systems are divided into three tiers:

Eligible Systems	Type of Interconnection
Certified, inverter-based system, ≤25 kW	Level 1. No application fee
Certified system ≤2 MW that do not qualify for level 1	Level 2. Application fee of up to $50 and additional $1/kW
All other systems	Level 3. Must pass specific reviews

In addition, all utilities, including Idaho Power, follow Oregon's rules for interconnection of small generators ≤10 MW. There are four tiers of review based on system capacity: ≤25 kW, >25 kW and ≤2MW, non-exporting systems ≤10 MW, and all other systems.
System size limit: 10 MW

Liability insurance: Small generators over 200 kW must have liability insurance

External disconnect switch: Required except for inverter-based systems up to 25 kW

THIRD PARTY OWNERSHIP

Third-party power purchase agreements (PPAs) are allowed in Oregon.

COMMUNITY SOLAR

In 2016, Oregon estbalished that at least 8% of the state's electricity generation capacity should come from small-scale, community renewable energy projects with a capacity of 20 MW or less.

STATE INCENTIVES

Program	Administrator	Incentive
Renewable Energy Systems Exemption	Oregon Department of Energy	Property value change due to the installation of solar system is exempt from assessment of the property's value for property tax purposes.
State Energy Loan Program	Oregon Department of Energy	State wide loan program. The amount of loans generally ranges from $20,000 to $20 million.
Energy Trust of Oregon	Oregon Public Utility Commission	The Energy Trust's renewable energy program offers financial incentives for small- and mid-scale solar projects. See more at Energy Trust of Oregon.
Solar Electric Incentive Program (1 MW maximum)	Energy Trust of Oregon	Funding from Energy Trust of Oregon to PacifiCorp and Portland General Electric Co customers
Utility Scale Solar Incentive Program	Oregon Business Development Department	$0.005/kWh; performance-based incentive for **2MW-10MW**
Community Renewable Energy Feasibility Fund Program	Oregon Department of Energy	State grant program; amount varies by project; up to $50,000 for systems **25 kW** to **10 MW**
Renewable Energy Development Grants	Oregon Department of Energy	State grant program; amount varies by project; up to $250,000, or 35% of total project costs

UTILITY INCENTIVES

Utility Program	Incentive	Eligibility
Ashland Electric Utility	Residential: $0.50/watt; Commercial: $0.75/watt	Capped at $7,500
Consumers Power, Inc.	$500/kW	Capped at $3,000
Lane Electric Cooperative	$0.5/watt	Capped at $2,000
Central Lincoln People's Utility District	$500/kW	Capped at $5,000; systems must be comprised of new, UL listed components
Pacific Power	Grant varies by projects	100% of capital costs
Pacific Power - Blue Sky Community Project Funds	Varies by project; 100% of capital costs maximum	Locally owned; non-residential; **≤10MW**
PGE Renewable Development Fund	Grant amount varies by project	**≤10 MW** in capacity that are directly interconnected to PGE's grid or delivered to PGE through a PPA

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Oregon Department of Energy: Oregon's Renewable Portfolio Standard	http://www.oregon.gov/energy/P-I/Pages/RPS_home.aspx
Net metering and interconnection	Department of Public Utilities: Net metering	http://www.mass.gov/eea/energy-utilities-clean-tech/electric-power/net-metering/net-metering.html
	Energy Trust of Oregon: Interconnection Guidebook for Developers of Small Scale Renewable Energy Generation Systems	https://energytrust.org/library/reports/100908_Interconnection_Guidebook.pdf
Community solar	Oregon Department of Energy: Community Solar	https://www.oregon.gov/energy/P-I/Pages/solar/Community_Solar.aspx
Programs and incentives	Energy Trust of Oregon: Incentives and financing for solar	http://energytrust.org/renewable-energy/incentives/solar/Commercial/SolarElectric1
	State Incentives for Solar	https://www.oregon.gov/energy/P-I/Pages/solar/Support.aspx
	Solar Oregon	http://solaroregon.org/how-to-go-solar/solar-electricity-for-home-owners/tax-credits-and-incentives-to-go-solar-electric/

Pennsylvania

Alternative Energy Portfolio Standard

~18%
2020-2021

Carve-out: 0.5% of retail sales by 2020
Tracking system: PJM-Generation Attribute Tracking System (PJM-GATS)

Pennsylvania divides its Alternative Energy Portfolio Standard into two tiers based on energy resource type. Investor-Owned Utilities (IOUs) and retail suppliers must source 8% of their retail sales from Tier 1 resources and 10% from Tier 2 resources by 2020-2021. Solar photovoltaic (PV) resources are included under Tier 1, but Pennsylvania has also established a separate 0.5% carve-out for PV.

Pennsylvania has one of the few competitive Solar Renewable Energy Certificate (SREC) markets in the country, stemming from its solar carve-out. Solar alternative compliance payment is a large driver for build-out in the state. In 2016, the Public Uility Commission made changes to its net metering rules for system capacity, allowing customers to net meter up to 200% of their annual consumption.

NET METERING

IOUs in Pennsylvania must offer retail customers net metering for systems ranging from 50 kilowatts (kW) to 5 megawatts (MW) depending on the off-taker and system type. Other electricity suppliers have the option of providing net metering, but are not obligated to.

System size limit: 200% of a customer's annual consumption

Aggregate cap: Not specified

Credit: Utility retail rate

RECs: Customers retain ownership of RECs

Meter aggregation: Virtual meter aggregation is allowed for customers within two miles of the generation facility

INTERCONNECTION

Pennsylvania's interconnection standards apply to IOUs and cover four levels of systems up to **5 MW** in capacity. All interconnection requests must adhere to the technical standards set forth in the Institute of Electrical and Electronics Engineers (IEEE) Standard 1547 and U.L. 1741.

Eligible Systems	Type of Interconnection
Inverter-based systems **up to 10 kW**	**Level 1.** Interconnection equipment must be certified; application fee of $100.
Inverter-based systems **≤2 MW** that do not qualify for Level 1	**Level 2.** Interconnection equipment must be certified; application fee of $250, plus $1.00 per kW of the facility's nameplate capacity. Customer-generators are required to cover any costs associated with minor modifications to the utility's distribution system. Level 2 includes interconnection requests to a radial distribution circuit or spot network serving an individual customer.
Systems **≤2 MW** that do not qualify for Levels 1 or 2	**Level 3.** Covers any interconnection requests that do not qualify or were not approved under Levels 1 and 2; application fee of $350, plus $2.00 per kW of the facility's nameplate capacity. Customer-generators are responsible for any of the utility's fees associated with accommodating the interconnection.
Systems that do not qualify for Levels 1–3 and that do not export power to the grid	**Level 4.** Customer-generators that that do not export power and do not qualify for Level 1-3 reviews may request to be evaluated under Level 4, which has the potential to be an expedited interconnection review. An application fee of $350, plus $2.00 per kW of the facility's nameplate capacity will be applied.

System capacity limit: **5 MW**

Insurance requirements: No liability insurance is required

External disconnect switch: Required

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are allowed in Pennsylvania.

COMMUNITY SOLAR

Virtual net metering is allowed, enabling community solar projects to take place. Utilities and developers offer community solar programs in Pennsylvania.

STATE INCENTIVES

Program	Administrator	Incentive
Sustainable Energy Fund	Statewide Sustainable Energy Board (plus individual administrators oversee each of the four independent funds)	Pennsylvania established four different Sustainable Energy Funds to support renewable energy development as part of the restructuring process for the state's five major utilities, which began in 1996. To date, $20 million in loans and another $1.8 million in grants have been has been allotted to projects. While new revenue is not currently being invested in the funds, they are being transitioned to revolving loan and investment funds.
Solar Alternative Energy Credit (SAEC) Program	Pennsylvania Public Utility Commission (PUC) (selection of new administrator in-process)	Pennsylvania established a statewide solar alternative energy credit (SAEC) (equivalent to a solar renewable energy certificate, or SREC) under which one credit equals 1 MWh of solar PV-generated electricity. Although the trading price varies widely based on market conditions, the minimum incentive is set at $0.04/kWh.
Solar Energy Program (SEP)	Pennsylvania Department of Community and Economic Development, Department of Environmental Protection, & Commonwealth Financing Authority	Pennsylvania's Solar Energy Program is undergoing revisions and is currently not accepting applications; however, once it resumes, the SEP will provide financing incentives to promote solar energy generation and manufacturing.

UTILITY INCENTIVES

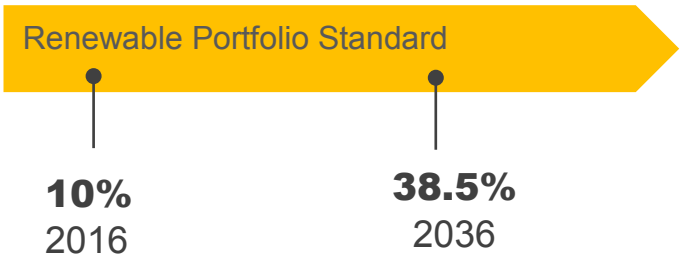
Under the umbrella of the Sustainable Energy Fund noted in the State Incentive Programs section above, four Pennsylvania utilities (West Penn Power Company, Metropolitan Edison Company, Pennsylvania Electric Company, and PECO Energy) maintain individual sustainable energy funds to support renewable energy development within their service territories through grant and loan programs.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Pennsylvania Public Utility Commission: Alternative Energy Credit Program	http://www.pennaeps.com/
	Pennsylvania Public Utility Commission: Alternative Energy	http://www.puc.pa.gov/consumer_info/electricity/alternative_energy.aspx
Net metering and Interconnection	Pennsylvania Public Utility Commission: Interconnection Agreements	http://www.puc.pa.gov/utility_industry/telecommunications/interconnection_agreements.aspx
Programs and incentives	Pennsylvania Public Utility Commission: Sustainable Energy Fund	http://www.puc.pa.gov/utility_industry/electricity/sustainable_energy_fund.aspx
	Pennsylvania Public Utility Commission: Alternative Energy Credit Program	http://paaeps.com/credit/
	Pennsylvania Department of Community and Economic Development: Solar Energy Program	http://dced.pa.gov/programs/solar-energy-program-sep/#.V-LWGnIVAy8

Rhode Island



Carve-out: None
Tracking system: New England Power Pool Generation Information System (NEPOOL-GIS)

Rhode Island extended its Renewable Energy Standard from 2019 to 2035 in 2016. It requires investor-owned utilities (IOUs) and retail suppliers to procure a certain percentage of their electricity from renewable energy.

In 2016, a bill was passed that included provisions of several solar policies, including establishment of community virtual net metering, increasing the system size limit for net metering, and property tax exemption for solar systems. Its net metering program accommodates medium to large sized customers. However, net excess generation is credited at the utility's avoided cost rate instead of the retail rate.

NET METERING

In 2016, Rhode Island increased the net metering system capacity limited from 5 MW to 10 MW and established community virtual net metering. IOUs must offer net metering to their retail customers. IOUs cannot increase demand charges and customer chargers above the rate for other customers and cannot impose any other charges on net-metered customers.

System size limit: 10 MW

Aggregate cap: 3% of peak load for Block Island Power Company and Pascoag Utility District; none for National Grid

Credit: Net excess generation credited at utility's avoided cost rate

RECS: Not addressed

Meter aggregation: Community virtual net metering is allowed. At least 50% of the capacity for the system should be distributed among users ≤25kW

INTERCONNECTION

Applicable to the state's IOU electric distribution companies, Rhode Island's interconnection policy for customer-sited systems require customers to submit application for system-impact studies to the utility. The cost of the impact study fee ranges from $500 to $10,000 for midsized systems.

Eligible Systems	Type of Interconnection
Residential systems **≤25 kW**	No impact study fee
Residential systems **>25 kW**	$100 impact study fee
Nonresidential systems **≤100 kW**	$500 impact study fee
Nonresidential systems **100 kW** to **1 MW**	$1500 to $10,000 impact study fee

System capacity limit: **5 MW**

Insurance requirements: Not addressed

External disconnect switch: Not addressed

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are allowed in Rhode Island. Third-party owned systems are eligible for net metering.

COMMUNITY SOLAR

Rhode Island established community virtual net metering in 2016, caping the total amount at 30 MW. The net-metered systems can be owned by one of the participants or by a third-party through lease or PPA model.

STATE INCENTIVES

Program	Administrator	Incentive
Renewable Energy Property Tax Exemption	Rhode Island Office of Energy Resources	Renewable energy equipment used in the residential (including multifamily and low income) and manufacturing sector are eligible for 100% exemption from property taxes.
Renewable Energy Products Sales and Use Tax Exemption	Rhode Island Office of Energy Resources	Solar equipment is eligible for 100% exemption from state sales and use tax.
Renewable Energy Corporate Tax Credit	Rhode Island Office of Energy Resources	PV systems connected to the grid or with battery storage can claim up to $15,000 in corporate income tax deductibles.
Commercial-Scale Renewable Energy Grants	Commerce RI	Renewable energy systems **>10kW** installed on businesses, institutions, non-profits, municipal property, and affordable housing projects. Each project can receive up to $350,000 in grants under the following incentive structure: $1.15/W for the first 0-50kW $1.00/W for the 2nd 50kW (up to 100kW) $.85/W for the 3rd 50kW (up to 150kW) $.70/W for the 4th 50kW (up to 200kW) $.55/W for the 5th 50kW (up to 250kW) $.40/W for all installed capacity over the first 250kW

UTILITY INCENTIVES

Utility	Incentive	Limitations
National Grid Rhode Island Renewable Energy Growth Program	$0.2255/kWh for twenty years	Solar PV systems from **26 kW** to **250 kW**

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Rhode Island Public Utilities Commission: Renewable Energy Standard	http://www.ripuc.ri.gov/utilityinfo/res.html
Net metering and Interconnection	Rhode Island Office of Energy Resources: Net Metering	http://www.energy.ri.gov/renewable/netmetering/
	Distributed Generation Interconnection	http://webserver.rilin.state.ri.us/Statutes/TITLE39/39-26.3/INDEX.HTM
Community solar	Public Utilities And Carriers - Renewable Energy Programs	http://webserver.rilin.state.ri.us/BillText/BillText16/HouseText16/H8354A.pdf
Programs and incentives	Rhode Island Office of Energy Resources: Sales and Use Tax Exemption	http://www.energy.ri.gov/renewable/tax/
	Commerce RI: Commercial Scale Funding Program	http://commerceri.com/finance-business/renewable-energy-fund/commercial-scale-projects/
Utility incentives	National Grid: Renewable Energy Growth Program	https://www9.nationalgridus.com/narragansett/business/energyeff/4_dist_gen.asp

South Carolina

Voluntary Renewable Energy Goal

2%
2021 (distributed energy)

Carve-out: 0.25% of total generation from systems less than 20 kW
Tracking system: None

The voluntary distributed energy resource program has been adopted by the investor owned companies (IOUs) Duke Progress, Duke Energy, and South Carolina Gas and & Electric.

The program specifies 1% of aggregate capacity should come from renewable energy facilities 1 MW-10MW, and 1% come from facilities <1MW, with 25% of the care out from systems <20 kW.

South Carolina does not have a comprehensive renewable energy portfolio standard, but a goal for distributed generation by 2021. The Distributed Energy Resource Program Act of 2014 established programs for the IOUs, such as rebates and shared solar programs.

NET METERING

The state's net metering program applies to all utilities with more than 100,000 customers, except for electric cooperatives. No new charges or fees can be imposed on net metering customer generators until 2021.

System size limit: 20 kW for residential; 1 MW for nonresidential

Aggregate capacity limit: 2% of average retail peak demand for the previous five years

Credit: Net excess generation is credited at the retail rate

RECs: Not addressed

Meter aggregation: Meter aggregation is not allowed

INTERCONNECTION

South Carolina's interconnection standards apply to the IOUs, Progress Energy, Duke Energy, and South Carolina Electric and Gas. The interconnection Please check utility interconnection procedures for specific interconnection and application instructions.

Eligible Systems	Type of Interconnection
Systems **up to 20 kW**	Inverter Process
Systems **>20 kW** and **≤2 MW** (2 MW on higher voltage distribution line, 1 MW on lower distribution line)	Fast Track Process
Systems that fail to qualify for the Fast Track Process	Study Process

System size limit: Not specified, South Carolina Public Service Commission has jurisdiction over interconnections of renewable distributed energy resources up to 80 MW.

Liability insurance: Residential customers are required to have minimum $300,000 coverage in general liability insurance; nonresidential customers are required to have minimum $300,000 coverage in general liability insurance

External disconnect switch: Required

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are not allowed in South Carolina.

COMMUNITY SOLAR

There is currently no statewide community solar policy or program. Duke Energy, Progressive Energy, and South Carolina Electric and Gas plan to have community/shared solar programs for their retail customers.

STATE INCENTIVES

Program	Administrator	Incentive
Solar Energy and Small Hydropower Tax Credit (Corporate)	South Carolina Department of Revenue	Corporations are eligible to receive a tax credit 50% of their tax liability for the year up to $3,500.

UTILITY INCENTIVES

Utility Program	Incentive	Limitations
Duke Energy Carolinas Solar Rebates	$1/Wdc for residential and nonresidential solar PV generators	System size limit is **≤20 kWac** for small solar, total participation capacity should be ≤10MWac. System size range is **>20 kWac** and **≤1 MWa,** total participation should be <30 MWac.
Progress Energy Solar Rebates	$1/Wdc for residential and nonresidential solar PV generators	System size limit is **≤20 kWac** for small solar, total participation capacity should be ≤3.25 MWac. System size range is **>20 kWac** and **≤1 MWa,** total participation <9.75 MWac.
South Carolina Electric and Gas Nonresidential Programs	Nonresidential customers can receive net metering credit at retail rate or bill credit at a set rate	Maximum system size limit is **1 MWac** for both net metering and bill credit. See South Carolina Electric and Gas Bill Credit Agreement for credit amount per kWh based on system size.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	South Carolina Distributed Energy Resource Program	http://www.scstatehouse.gov/sess120_2013-2014/prever/1189_20140521.htm
Interconnection standards	South Carolina Energy Office: Net Metering	http://www.energy.sc.gov/utilities/metering
	Public Service Commission Order No. 2016-191: South Carolina Small Generator Interconnection Procedures	https://dms.psc.sc.gov/Attachments/Order/11891e05-689d-4fe7-8816-c959480feb4e
Programs and incentives	South Carolina Department of Revenue: Solar Energy and Small Hydropower Tax Credit	https://dor.sc.gov/forms-site/Forms/TC38_07272011%20(2).pdf
	South Carolina Electric and Gas: Solar for Your Business	https://www.sceg.com/for-my-business/solar-for-your-business
	South Carolina Electric and Gas: Nonresidential Programs Net Energy Metering and Bill Credit Agreement	https://www.sceg.com/docs/librariesprovider5/default-document-library/non-residential-comparison-chart_revised_9_28.pdf
	South Carolina Electric and Gas: Bill Credit Agreement	https://www.sceg.com/docs/librariesprovider5/electric-gas-rates/der-tariff-no-2-_bill-credit-agreement.pdf?sfvrsn=2
	Duke Energy: Solar Power in South Carolina (includes links to Duke Energy Carolinas and Duke Energy Progress rebates)	https://www.duke-energy.com/south-carolina/renewable-energy/solar.asp

South Dakota

Carve-out: none
Tracking system: Western Renewable Energy Generation Information System (WREGIS)

Voluntary Renewable Energy Goal

10%
2015

South Dakota had set a goal for 10% of retail electricity sales to come from renewable and recycled energy and energy conservation by 2015. Both in-state and out-of-state renewable energy certificates (RECs) qualified towards the goal.

South Dakota does not have net metering or community solar policies to support midmarket solar. It does have distributed generation interconnection standards that offer expedited interconnection for midscale solar. It had a voluntary renewable energy goal and established REC tracking and verification rules. According to the Public Utilities Commission, most utilities have reached their goals by 2014.

NET METERING

South Dakota does not have a statewide net metering program.

INTERCONNECTION

South Dakota's interconnection standards for small generators apply to all investor-owned utilities (IOUs) within the state.

Eligible Systems	Type of Interconnection
Inverter-based systems ≤10 kW	Tier 1: 15 business day review process
≤2 MW that do not qualify for Tier 1	Tier 2: 20 business day review process
Non-exporting systems ≤2 MW	Tier 3: 20 business day review process
All other systems ≤10 MW	Tier 4: Requires feasibility study and system impact study

System size limit: 10 MW

Liability insurance: Required for all systems, with levels varying by tier. Tiers 2 to 4 must include utility as additional insured

External disconnect switch: Utilities may require external disconnect switch to be installed

THIRD PARTY OWNERSHIP

The status of third-party solar power purchase agreements (PPAs) is unclear in South Dakota.

COMMUNITY SOLAR

There are currently no statewide community solar policies or programs in South Dakota. Utilities and developers may offer community solar programs.

STATE INCENTIVES

Program	Administrator	Incentive
Renewable Energy System Exemption	South Dakota Department of Revenue and Regulation	The first $50,000 or 70% of the assessed value of a property with renewable facilities **<5 MW** is exempt from real property tax.
Renewable Energy Facility Sales and Use Tax Reimbursement	Governor's Office of Economic Development	Commercial, industrial, agricultural, and contractors are eligible to receive reinvestment payment up to 100% of sales and use tax paid for project. The cost must be more than $2 million. The incentive was designed for wind but solar PV is also eligible.

UTILITY INCENTIVES

Check with local utilities for midscale solar PV incentives.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Goal	South Dakota Public Utilities Commission: Renewable, Recycled and Conserved Energy Objective Annual Reports	https://puc.sd.gov/energy/reo/SDakotaRenewableRecycledConservedReport.aspx
Net Metering and interconnection	South Dakota Small Generator Facility Interconnection	http://www.sdlegislature.gov/rules/DisplayRule.aspx?Rule=20:10:36
Programs and incentives	South Dakota Department of Revenue and Regulation: Renewable Resource System Property Valuation Exemption	https://dor.sd.gov/Taxes/Property_Taxes/PDFs/RENEWABLE%20RESOURCE%20SYSTEM.pdf
Others	South Dakota Public Utilities Commission: PUC Small Renewable Energy Initiative	https://puc.sd.gov/SmallWind/default.aspx

Tennessee

Renewable Portfolio Standard: None

Carve-out: None
Tracking system: PJM-Generation Attribute Tracking System (PJM-GATS)

Tennesee does not have a renwable portfolio standard or goal, and does not offer net metering. However, Tenesee Valley Authority (TVA), which serves virtually all of the counties in Tennessee, offers a distributed solar program of 10 MW for projects 50 kW to 5 MW in 2016.

NET METERING

Tennessee does not have a statewide net metering program. TVA offers a dual metering option for participants in its Green Power Providers program.

INTERCONNECTION

Tennessee dos not have standardized interconnection. TVA has a fast track process for inverter-based systems up to **10 kW**.

THIRD PARTY OWNERSHIP

The status of third-party solar power purchase agreements (PPAs) in unclear in Tennessee.

COMMUNITY SOLAR

There are currenty no statewide community solar policies or programs. Utilities and project developers may offer community solar projects.

STATE INCENTIVES

Program	Administrator	Incentive
Pathway Energy Efficiency Loan Program	Pathway Lending Community Development Financial institution	The program offers low-interest loans for businesses and non-profits for energy efficiency and renewable energy improvements, including the installation of solar PV.
Sales Tax Credit for Clean Energy Technology	Tennessee Department of Revenue	Commercial and industrial sector taxpayers are eligible for 100% of sales and use tax exemption. The system must be certified as a Green Energy Production Facility.
Green Energy Property Tax Assessment	Tennessee Comptroller of the Treasury	Commercial and industrial sector taxpayers qualify for special appraisal of property tax. The property value of the certified green energy production facility may not exceed 12.5% of the installed cost for solar.

UTILITY INCENTIVES

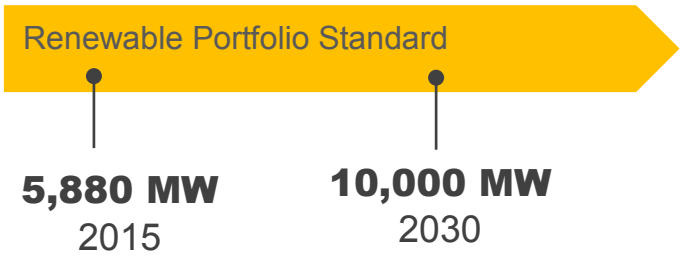
Prospective customers in the TVA service territory may be eligible for TVA incentives. Systems smaller than 50 kW may qualify for TVA's Green Power Providers program, which buys 100% of system output for the first 10 years of operation at $0.02/kWh above the retail rate, and an additional 10 years of output at the retail rate. Mid-sized projects (**50 kW** to **20 MW**) may be eligible for TVA's Renewable Standard Offer program. The program buys mid-sized project output through 10-, 15-, or 20-year contracts at a rate that escalates 5% annually. In 2015, TVA began a pilot program titled the Solar Solutions Initiative that offers an additional $0.04/kWh for the first 10 years of solar projects. The program set aside 4 MW of program-eligible capacity for projects **between 50 and 200 kW.**

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and Interconnection	Tennessee Valley Authority: Green Power Providers Program Participation Guidelines	https://www.tva.com/file_source/TVA/Site%20Content/Energy/Renewables/Green%20Power%20Providers/gpp_guidelines_2016_final.pdf
Programs and incentives	Pathway Lending: Energy Efficiency Loans	https://www.pathwaylending.org/energy-efficiency-resources/
	Tennessee Department of Environment and Conservation: Certified Green Energy Production Facilities	https://tn.gov/environment/article/sp-certified-green-energy-production-facilities
	Senate Bill 1000: Equitable taxation of green energy production facilities	http://www.capitol.tn.gov/Bills/108/Bill/SB1000.pdf
Others	Tennessee Valley Authority: Green Power Providers	https://www.tva.com/Energy/Renewable-Energy-Solutions/Green-Power-Providers

Texas



Carve-out: Voluntary 500 MW non-wind generation capacity by 2015 goal
Tracking system: Texas Renewable Energy Credit Program

Texas' Goal for Renewable Energy set a target of 10,000 MW by 2025 for investor-owned utilities (IOUs) and retail suppliers. This target was already achieved by 2009, mostly through wind energy. The voluntary carve-out for non-wind renewable generation has also been met.

Solar installations have been led by cities in Texas, with San Antonio, Austin, and other municipalities and utilities offering rebates, net metering programs, and other incentives.

NET METERING

Texas does not have statewide net metering policy. Municipalities and utilities offer net metering programs separately.

INTERCONNECTION

IOUs are subject to Texas standard interconnection applications and interconnection agreements

Eligible Systems	Type of Interconnection
Distributed renewable generation **≤500 kW**	Fast track process (no pre-interconnection study fees)
Distributed renewable generation **>500 kW** and **≤2 MW**	Distributed renewable generation standard interconnection process

System capacity limit: **10 MW** for distributed generators, **2MW** for distributed renewable generation

Insurance requirements: Additional liability insurance not required for systems **≤2 MW** that meet the specified technical standards

External disconnect switch: Required

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are allowed in Texas.

COMMUNITY SOLAR

Texas currently does not have a statewide community solar policy or program. Third-party developers and utilities offer opportunities for community solar participation.

STATE INCENTIVES

Program	Administrator	Incentive
Renewable Energy Systems Property Tax Exemption	Comptroller of Public Accounts	Exemption of the amount of 100% of the appraised property value increase due to installation or construction of solar or wind generation equipment for on-site use.
Solar and Wind Energy Device Franchise Tax Deduction	Comptroller of Public Accounts	The total cost of solar energy equipment can be deducted from a company's taxable capital, or 10% of the system's cost may be deducted from the company's income.
LoanSTAR Revolving Loan Program	Comptroller of Public Accounts	State, public school district, public college, public university, and tax-district supported public hospital facilities may qualify for low-cost financing for energy-related cost reduction retrofits

UTILITY INCENTIVES

Utility Program	Incentive	Limitations
CPS Energy (San Antonio) Solar PV Rebate Program	Schools: $2/Wac for the first 25 kW and $1.3/Wac for additional capacity	Maximum rebate of $80,000
	Residential customers: $1.6/Wac	Maximum rebate of $25,000
	Commercial customers: $1.60/Wac for the first 25 kWac and $1.30/Wac for any additional capacity	Maximum $80,000 rebate or 50% of rebate equipment installation labor and material costs
	Residential and commercial customers not using local, registered CPS Energy Installers: $1.30/Wac	Maximum $25,000 for residential and $80,000 for commercial
Austin Energy Solar PV Rebate (production-based incentive)	Multi-family: 0.09 $/kWh	
	Small commercial and nonprofit: $0.05/kWh to $0.08/kWh	Small commercial and non-profit system capacity range: **500 kWac** to **2000 kWac**
	Large commercial: $0.02/kWh to $0.04/kWh	Large commercial system capacity: **4000 kWac**
Oncor Commercial and Industrial Rebate Program	$538.53 kWac + $0.2519 kWh	Small commercial project: system size between 1 kWdc to **100 kW** Large commercial project: **system size >100 kW** Facility must have electric delivery service provided by Oncor. Incentives provided to Service Provider.
AEP Texas North Company	Residential 1.20 $/W Nonresidential $1.05/W	Maximum $10,500 per residential customer (equivalent to a **10-kW system**), Maximum $25,000 per non-residential customer (equivalent to a **25-kW system**), and Maximum $81,450 per service provider or project owner.

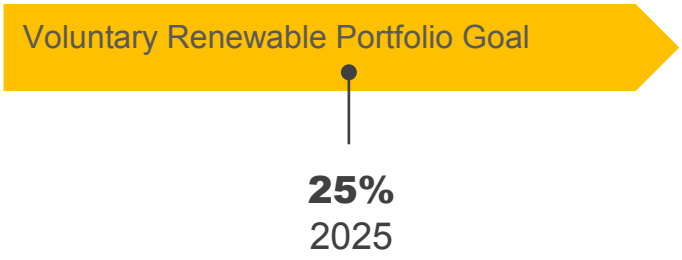
RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable portfolio standard	Public Utility Commission of Texas: Electric Substantive Rules Goal for Renewable Energy	http://www.puc.texas.gov/agency/rulesnlaws/subrules/electric/25.173/25.173ei.aspx
	Public Utility Commission of Texas: Renewable Energy Credit Generators and Offsets Certification	https://www.puc.texas.gov/industry/electric/business/rec/Rec.aspx
Net metering and Interconnection	Public Utility Commission of Texas: Distributed Generation	http://www.puc.texas.gov/industry/electric/business/dg/dg.aspx
Programs and incentives	State Energy Conservation Office: Texas Tax Code Incentives for Renewable Energy	http://seco.cpa.state.tx.us/re/incentives-taxcode-statutes.php
	State Energy Conservation Office Funding and Incentives	http://seco.cpa.state.tx.us/funding/
	CPS Energy Solar Photovoltaic Rebates	https://www.cpsenergy.com/content/corporate/en/my-home/savenow/rebates-rebate/solar-photovoltaic-rebate.html
	Austin Energy: Solar Photovoltaics Incentive	http://powersaver.austinenergy.com/wps/portal/psp/commercial/offerings/solar/solar-photovoltaics/!ut/p/a1/jZFRT8MgFIV_yx76uHFLM62-NbXJqp11LpuVF4MNbUkoEGBd9NdLdS9Tp7svNxe-c244IIIqRCQdeEsdV5KKcSYXL4BjvEgB52VW3kC-LbdJeZcChHMPPB8B5cMc8stHXKzWURhvwjP1JyqB__S3ZyzAZpkuW0Q0dd2Uy0ahyipBzaFNdaecGpRwlNd2FCTyNYq9wLCGGWZmO-OT6JzT1wEEoNWeGUsHf0F31nHJJDPt26xWfQB7bUfCOCp8tzoAf9wzU_PPNH9Yd8o6VP1hiZ4QOX5jnGQY8nvIoiJbQXyFvwO_fMIXcDpl3W-q92IhhqJZ5-1k8gG-QjdS/dl5/d5/L2dBISEvZ0FBIS9nQSEh/

Oncor: Solar Photovoltaic Commercial Standard Offer Program	http://www.takealoadofftexas.com/solar-pv-business.aspx
AEP: SMART Source Solar PV Program	http://www.txreincentives.com/apv/index.php

Utah



Carve-out: None (solar multiplier applied)
Tracking system: Western Energy Generation Information System (WEGIS)

Utah's renewable portfolio standard (RPS) is not compulsory, indicating each investor-owned utility (IOU), municipal utility, and electric cooperatives should pursue renewable energy if "cost-effective". Utilities are required to report their progress to meet the target for retail sales every five years until 2025. A multiplier of 2.4 is credited to solar generation for compliance purposes.

Utah does not have a compulsory RPS. However, renewable energy certificates (RECs) generated in Utah can be used to fulfill utilities' targets, be sold to other states, or participate in the voluntary REC market. Utah's net metering program extends to 2 MW and has a high aggregate capacity limit. Various state tax incentives can be utilized to supplement the federal tax incentives.

NET METERING

Net metering is available to customers of IOU Rocky Mountain Power and electric cooperatives in Utah. Municipal utilities may offer separate net metering programs.

Net-metered solar PV customers are not exempt from utility minimum bill charges for all customers. The Commission has the authority to determine whether any new rate structure, charge, or credit is warranted based on cost-benefit assessment.

System size limit: **20 kW** for residential; **2 MW** for non-residential

Aggregate cap: 20% of utility's peak demand in 2007

Credit: Net excess generation is credited at the retail rate for residential and small commercial customers; large commercial and industrial customers with demand charge may choose between valuing net excess generation at the avoided cost rate or at an alternative rate based on utility revenue and sales.

RECs: Customers retain ownership of RECs

Meter aggregation: Meter aggregation is allowed for customer with multiple meters at one location or adjacent locations

INTERCONNECTION

Utah adapted rules for interconnection applicable to small generators for IOU and electric cooperatives over which the Public Service Commission (PSC) has jurisdiction over.

Eligible Systems	Type of Interconnection
Inverter-based system **≤25 kW**	Level 1 (approve or deny within 15 days after application completion)
≤2 MW and does not qualify for Level 1 interconnection	Level 2 (approve or deny within 15 days after application completion; may need supplemental review)
>2 MW and **≤20 MW**	Level 3 (may need scoping meeting, feasibility study, and/or system impact study at customer's cost)

System size limit: **20 MW**

Liability insurance: Additional liability insurance not required for systems **≤2 MW**; insurance requirements at utility's discretion for systems **>2 MW**.

External disconnect switch: Required for all systems that are not inverter-based systems **≤10 kW**

THIRD PARTY OWNERSHIP

Third-party power purchase agreements (PPAs) are allowed in Utah.

COMMUNITY SOLAR

Utah allows aggregate net metering. There is currently no statewide solar program, but numerous solar projects have been built.

STATE INCENTIVES

Program	Administrator	Incentive
Renewable Energy Systems Investment Tax Credit	Governor's Office of Energy Development	Tax credit of up to $2,000 (or 25% of system cost) for residential taxpayers $50,000 (or 10% of system cost) for commercial taxpayers.
Renewable Energy systems Production Tax Credit	Governor's Office of Energy Development	Renewable energy systems **≥660 kW** are eligible to receive $.0035/kWh of electricity produced for the first 48 months after project commissioning. Systems between 660 kW to 2 MW can choose between the Utah production tax credit and investment tax credit
Alternative Energy Sales Tax Exemption	Utah State Tax Commission	Commercial, industrial, and utility tax payers are exempt from 100% of state sales and use tax for the purchase or lease of renewable energy generation equipment that increases the generation capacity of the property by **≥1 MW.**

UTILITY INCENTIVES

Utility	Incentive	Limitations
Rocky Mountain Power Utah Solar Incentive Program	Rebate of $0.65/W after installation for large nonresidential net-metered systems. Smaller systems receive more rebate per watt.	$700,000 maximum incentive for large nonresidential systems **>25 kW** and **≤2 MW**

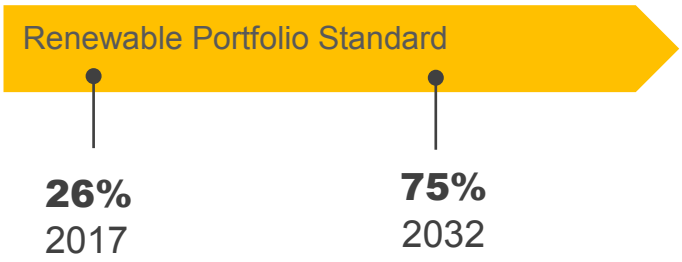
RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Energy Resource and Carbon Emission Reduction Initiative	http://le.utah.gov/~2008/bills/sbillenr/sb0202.pdf
Net metering and Interconnection	Utah Clean Energy: Solar Simplified Net Metering (includes utility net metering links)	http://solarsimplified.org/connecting-to-the-grid/net-metering-in-utah

	Rocky Mountain Power: Net Metering Utah	https://www.rockymountainpower.net/env/nmcg/nm/utah.html
	Public Services Commission, Electrical interconnection	http://www.rules.utah.gov/publicat/code/r746/r746-312.htm#T15
Community solar	My Community Solar: Past and Current Projects in Utah	http://www.mycommunitysolar.org/what-is-community-solar/past-and-current-projects
Programs and incentives	Governor's Office of Energy Development: Renewable energy Systems Tax Credits	http://energy.utah.gov/solar-tax-credit/
	Utah Code: Alternative Energy Sales Tax Exemption	http://le.utah.gov/xcode/Title59/Chapter12/C59-12-S104_2015051220150701.pdf
	Utah Clean Energy: Solar Simplified (one-stop-shop for solar information in Utah) Solar Incentives in Utah	http://solarsimplified.org/incentives-financing/solar-incentives-in-utah
	Rocky Mountain Power: Solar Incentive Program	https://www.rockymountainpower.net/env/nmcg/usip.html
Others	Utah Clean Energy: Policy Central	http://utahcleanenergy.org/policy-central
	Governor's Office of Energy Development: Renewable Energy	http://energy.utah.gov/category/renewable-energy/

Vermont



Carve-out: Distributed generation 1% of annual retail electricity sales by 2017; 10% by 2032.
Tracking system: New England Generation Information System (NE-GIS)

All electricity suppliers in Vermont are required to obtain 55% of retail electricity sales from renewable sources by 2017. The standard increases by 4% every three years until reaching 75% by 2032. Distributed generation refers to renewable generation under 5 MW connected to the distribution utility or a net-metered system providing RECs to the electricity supplier.

Vermont's net metering program has a system size limit of 500 kW, which can provide credit for excess generation from midscale systems. Group net metering has enabled community solar, which provides growth opportunities for midmarket solar. The state also offers various incentives that fall within the range of midscale solar.

NET METERING

All utilities in Vermont are required to offer net metering to retail customers. To qualify for net metering, the customer must obtain a Certificate of Public Good from the Vermont Public Service Board (PSB). A simplified registration process for the certificate is applicable to net metered PV systems **≤15 kW**.

System size limit: **500 kW**; **2 MW** for military

Aggregate cap: 15% of a utility's peak demand during 1996 or most recent year

Credit: Net excess generation is credited at the retail rate plus an additional credit for solar energy; for solar systems **≤15 kW**, the additional credit is equal to $0.20 minus the utility's residential retail rate; for solar systems **>15 kW**, the additional credit is equal to $0.19 minus the residential retail rate[12].

RECS: Utilities own RECs unless the customer elects to retain ownership

Meter aggregation: Group net metering is allowed

[12] For example, if a utility's highest residential rate is $0.18/kWh, the additional credit for a 50kW PV system would be $0.01/kWh. If the residential rate is higher than $0.19/kWh, the same system would not receive additional credit. The residential rate is used to calculate the additional credit even if the customer belongs to another rate class, such as commercial or industrial.

INTERCONNECTION

Vermont has interconnection standards for distributed generation systems up to **50 MW**[13] (under Rule 5.500) and a special set of standards for net-metered systems **≤150 kW** (under Rule 5.100).

Eligible Systems	Type of Interconnection
Net-metered systems **≤15 kW**	Simplified net-metered interconnection process (response within ten days)
Net-metered systems **≤150 kW**	Standard net-metered interconnection process
Distributed systems **>150 kW**	May qualify for fast track interconnection[14]; otherwise follow standard distributed system interconnection process.

System capacity limit: **50 MW**

Insurance requirements: Liability insurance is not required

External disconnect switch: Required

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are allowed in Vermont.

COMMUNITY SOLAR

Vermont's group billing mechanism under its net metering policy allows customers to share renewable energy output from a system. Utilities and third-party owners may offer shared solar projects to electric customers. The output of the system is limited at **500 kW** based on the net metering system size cap.

[13] Systems subject to Independent System Operator of New England or Federal Energy Regulatory Commission rules are not subject to Vermont's distributed generation interconnection rules.

[14] To qualify for fast track interconnection under Vermont's interconnection procedures, the system must satisfy all of the items under the Fast Track Screening Criteria. The utility decides if systems qualify for fast track based on its load, distribution system conditions, aggregate generation, and characteristics of the PV system, which includes but is not capped by its generation capacity. The criteria are listed in Rule 5.500.

STATE INCENTIVES

Program	Administrator	Incentive
Renewable Energy Systems Sales Tax Exemption	Vermont Department of Taxes	Renewable energy systems **≤500 kW** qualify for 100% exemption from Vermont's state sales tax.
Solar Property Tax Exemption	Vermont Department of Taxes	Solar PV generating facilities **<50 kWac** are exempt from the $4/kW annual Uniform Capacity Tax and property tax; PV facilities **≥50 kWac** are subject to the Uniform Capacity Tax but exempt from statewide education property tax. Municipal authorities have the option to offer property tax exemption for solar systems.
	Vermont Department of Taxes	
Commercial/Agricultural Energy Loan Program	Vermont Economic Development Authority	Maximum loan of $2 million may be available for commercial entities, farms individuals, and municipalities to build or improve renewable energy or energy efficiency projects. Another loan program with a maximum load of $500,000 is available for small businesses.
Standard Offer Program	Vermont Electric Power Producers (VEPP) Inc. on behalf of the Vermont Public Service Board	PV systems **≤2.2 MW** can bid into the Public Service Board's request for proposals for long-term contracts at avoided cost rates to be used as annual per kilowatt hour costs.
Tax Exemptions	New York State Department of Taxation and Finance; New York State Office of Real Property Tax Services; or locally administered	Residential and non-residential solar systems for private use are exempt from NY State sales and compensating use taxes. Residential solar energy systems equipment and services are exempt from local sales tax in New York City. Commercial, Industrial, Nonprofit, Residential, Schools, Multifamily Residential, Institutional sectors can obtain property tax abatement for PV system expenditures at a reduced rate. Systems installed from January 1, 2014 to December 31 by these users in New York City can obtain property tax abatement for PV system expenditures at 5% of the system expenditures per year for four years.

UTILITY INCENTIVES

Utility	Incentive	Limitations
Green Mountain Power Solar Power	$0.053 per kWh for systems with **≤15 kW** and under capacity and $0.043 for systems **>15 kW**.	**Systems ≤500 kW** are eligible for Green Mountain Power's additional credit

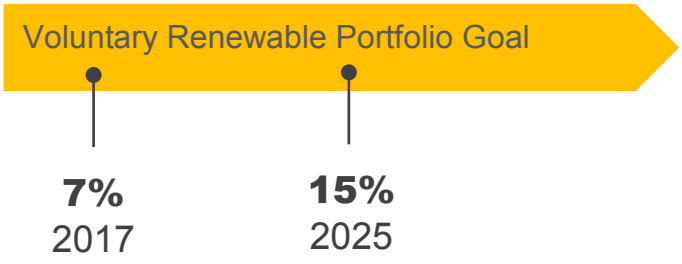
RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable portfolio standard	Vermont Public Service Board: Establishment of the Renewable Energy Standard	http://psb.vermont.gov/docketsandprojects/electric/8550
Net metering and interconnection	Vermont Public Service Board: Net Metering	http://psb.vermont.gov/utilityindustries/electric/backgroundinfo/netmetering
	Department of Public Service: Net Metering	http://publicservice.vermont.gov/renewable_energy/net_metering
	Vermont Public Service Board: Rule 5.500 Interconnection Requirements	http://psb.vermont.gov/docketsandprojects/electric/interconnection
	Vermont Public Service Board: Rule 5.100 Net Metering Interconnection Requirements	http://psb.vermont.gov/sites/psb/files/rules/OfficialAdoptedRules/Appendix%20A%20amendedTech%20Specs%20clean.pdf
Community solar	Vermont Public Service Board: Net Metering Expansion	http://www.leg.state.vt.us/docs/2014/Acts/ACT099.pdf
Programs and incentives	Vermont Department of Taxes: Everything You Need to Know About Solar	http://tax.vermont.gov/municipal-officials/solar-valuation/everything-you-need-to-know-about-solar
	Vermont Department of Taxes: Taxation of Solar Plants Factsheet	http://tax.vermont.gov/sites/tax/files/documents/SolarTaxationWithDiagramFS.pdf

Vermont Economic Development Authority: Commercial Energy Loan Program	http://www.veda.org/financing-options/vermont-commercial-financing/commercial-energy-loan-program/
Vermont Economic Development Authority: Agricultural Energy Loan Program	http://www.veda.org/financing-options/vermont-agricultural-financing/agricultural-energy-loan-program/
Vermont Economic Development Authority: Small Business Energy Loan Program	http://www.veda.org/financing-options/vermont-commercial-financing/small-business-energy-loan-program/
Vermont Economic Development Authority: Loan Rates	http://www.veda.org/commercial-loan-rates-fees/#small
Vermont Standard Offer Program	http://www.vermontstandardoffer.com/standard-offer-program-summary/

Virginia



Carve-out: None
Tracking system: PJM-Generation Attributes Tracking System (PJM-GATS)

Virginia's renewable portfolio standard (RPS) is not compulsory, but requires each investor-owned utility (IOU) to report its efforts to meet the goals. The targets are defined as percentages of the amount of retail electricity sales in 2007 (base year).

Virginia does not have a compulsory RPS. However, renewable energy credits (RECs) generated in Virginia can be used to fulfill utilities' targets. Solar RECs can participate in the Pennsylvania SREC market.

NET METERING

Net metering is available to customers of IOUs and electric cooperatives in Virginia. Net-metered solar PV systems **>10 kW** are subject to standby charges established by the utility. Please check utility standby rates.

System size limit: Residential **20 kW**, non-residential **1 MW**, agricultural **500 kW**

Aggregate cap: 1% of utility's adjusted Virginia peak-load forecast for the previous year

Credit: Net excess generation is credited at the retail rate

RECs: Customers retain ownership of RECs, option to sell to utility

Meter aggregation: Agricultural customers can aggregate electric meters into a single account up to **500 kW**; not addressed for other sectors

INTERCONNECTION

Virginia has one set of interconnection standards for net-metered systems and one set for other systems up to 20 MW. For net-metered systems, customers submit the application for interconnection to distribution utilities, which has 30 days to determine if the requirements are met for interconnection for residential customers and 60 days for non-residential customers.

Eligible Systems	Type of Interconnection
≤500 kW	Level 1 (evaluation and no additional studies; $100 application fee)
>500 kW and ≤2 MW	Level 2 (initial review, possible supplemental review; $500 application fee)
>2 MW and ≤20 MW	Level 3 ($1000 application fee or 50% of estimated cost of feasibility study)

System size limit: 20 MW

Liability insurance: Varies by size, levels established by the SCC; net-metered systems >10 kW must have at least $300,000 in coverage

External disconnect switch: Requirement at utility's discretion

THIRD PARTY OWNERSHIP

Third-party power purchase agreements (PPAs) are allowed in Virginia.

COMMUNITY SOLAR

There are currently no statewide community solar policy or programs in Virginia. Local utilities may offer community solar programs.

STATE INCENTIVES

Program	Administrator	Incentive
Commercial Solar Property Tax Exemption	Virginia Department of Mines, Minerals, and Energy	All commercial solar generation systems **<20 MW** with appropriate certification are exempt from state and local property taxes.

UTILITY INCENTIVES

Utility	Incentive	Limitations
Pacific Power	Up to 100% of capital cost of community-based renewable energy projects	**<10 MW**, locally owned, **non-residential**
Clark Public Utilities	Loans for solar PV systems at 3.5% interest rate	Capped at $10,000 for up to five years and $30,000 for up to seven years No system cap; residential customers
Okanogan Public Utilities	Loans for solar PV systems with a service fee of 0.2% per month	Capped at $10,000 for up to 60 months; residential and business customers
Orcas Power and Light	Performance-based incentive for PV electricity generation (temporary moratorium)	10 MWh per year for commercial customers, 4 MWh per year for other customers

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Virginia State Corporation Commission: Renewable Energy Portfolio Standards	https://www.scc.virginia.gov/pue/renew.aspx
Net metering and Interconnection	Virginia Legislative Information System: Regulations Governing Net Energy Metering	http://law.lis.virginia.gov/admincode/title20/agency5/chapter315
Programs and incentives	Virginia Department of Mines Minerals and Energy: Energy Tax Incentives	https://www.dmme.virginia.gov/DE/Energy_Incentives.shtml
		https://www.dmme.virginia.gov/DE/Energy_Incentives.shtml
	Washington State Department of Revenue: Renewable Energy System Cost Recovery Incentive Payment Program	http://dor.wa.gov/Docs/Pubs/Incentives/RenewableEnergyFactSheet.pdf
	Washington State Department of Revenue: Renewable Energy Equipment Approved for “Made in Washington”	http://dor.wa.gov/Docs/Pubs/IndustSpecific/ManufacturingList.pdf
	Washington State Legislature: Renewable Energy System Cost Recovery	http://apps.leg.wa.gov/WAC/default.aspx?cite=458-20-273
	Dominion Virginia Power: Renewable Energy Programs	https://www.dom.com/residential/dominion-virginia-power/ways-to-save/renewable-energy-programs
	Clark Public Utility District: Solar Loan Program	https://www.clarkpublicutilities.com/residential-customers/reduce-energy-waste-and-lower-your-bill/all-rebates-incentives-and-low-interest-loans/solar-energy-program/solar-loan-program/
	Okanogan Public Utility District: Conservation Loans	https://www.okanoganpud.org/energy-services/residential-conservation-loans
	Orcas Power and Light: Member Owned Renewable Energy	http://energysavings.opalco.com/energy-savings/renewable-generation/m-o-r-e/

Washington

Renewable Portfolio Standard

15%
2020

Carve-out: None (multiplier for distributed generation)
Tracking system: Western Renewable Energy Generation Information System (WREGIS)

Investor-owned utilities (IOUs), municipal utilities, and electric cooperatives serving more than 25,000 customers in Washington State (including the Bonneville Power Administration) are required to comply with the Renewable Portfolio Standard (RPS)

2X multiplier is applied for distributed generation to meet compliance

Washington allows net metering for systems up to 100 kW, and interconnection for systems up to 20 MW where the interconnection process is based on system capacity. Washington extends a renewable energy system cost recovery incentive to community solar projects. The state also has sales and use tax exemptions for renewable energy systems. Utilities offer varied loans and incentives to their renewable energy customers.

NET METERING

All customer classes are eligible for net metering. Net-metered system up to **100 kW** in generation capacity can apply for net metering with its utility until the cumulative capacity reaches 0.5% of the utility's 1996 peak demand.

System size limit: **100 kW**

Aggregate cap: 0.5% of utility's 1996 peak demand

Credit: Net access generation is credited at the retail rate

RECs: Customers retain ownership of RECs if receiving state production incentives

Meter aggregation: Meter aggregation is allowed for up to **100 kW** per customer

INTERCONNECTION

Washington's adopted standard distributed generation interconnection procedures for the state's IOUs. The interconnection procedures are divided into three levels based on system capacity. All inverter-based systems must meet IEEE 1547 and UL 1741 specifications.

Eligible Systems	Type of Interconnection
Inverter-based system **≤25 kW**	Tier 1 (20 days to issue approval decision; $ application fee)
System **>25 kW** and **≤500 kW**	Tier 2 (30 days to issue approval decision; $500 application fee)
All other systems	Tier 3 (30 days or after all required studies are complete to issue Interconnection Agreement; $1000 application fee)

System size limit: **20 MW**

Liability insurance: Not required for systems **<100 kW**; all other systems' requirements vary by application and size, per levels established by the Utilities and Transportation Commission

External disconnect switch: Not required for inverter-based systems **≤25 kW**

THIRD PARTY OWNERSHIP

The status of third-party power purchase agreements (PPAs) is unclear in Washington.

COMMUNITY SOLAR

Washington's renewable energy system cost recovery incentive extends to community solar projects **≤75 kW**. For a system installed on the property of a local government facility (e.g. schools, government buildings, parks), the state provides a direct incentive of at least $0.30/kWh. Systems using PV modules and inverters manufactured in Washington can receive up to $1.80/kWh.

Individual utilities also offer community solar programs in Washington. Please check with local utility for participation.

STATE INCENTIVES

Program	Administrator	Incentive
Renewable Energy Sales and Use Tax Exemption	Washington State Department of Revenue	Solar PV systems **≤10 kW** qualify for 100% exemption from state sales and use tax until 2018. PV systems **>10 kW** can receive a 75% refund in state sales and use tax until January 2020.
Renewable Energy Cost Recovery Incentive Payment Program	Washington State Department of Revenue and local utilities	Customer-owned renewable energy generation systems can receive incentive payments up to $5000 per year. Incentive payment rates vary based on the technology, number of components that are "Made in Washington", and whether the project is community-owned. System owners receiving the incentive must be an individual, business, local government entity, or community solar owner or member, and a customer of the local utility. Third-party owned systems cannot qualify for the incentive.

UTILITY INCENTIVES

Utility	Incentive	Limitations
Pacific Power	Up to 100% of capital cost of community-based renewable energy projects	**<10 MW**, locally owned, non-residential
Clark Public Utilities	Loans for solar PV systems at 3.5% interest rate	Capped at $10,000 for up to five years and $30,000 for up to seven years No system cap; residential customers
Okanogan Public Utilities	Loans for solar PV systems with a service fee of 0.2% per month	Capped at $10,000 for up to 60 months; residential and business customers
Orcas Power and Light	Performance-based incentive for PV electricity generation (temporary moratorium)	10 MWh per year for commercial customers, 4 MWh per year for other customers

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Department of Commerce: Energy Independence Act	http://www.commerce.wa.gov/growing-the-economy/energy/energy-independence-act/
Net metering and Interconnection	Utilities and Transportation Commission: Net Metering	http://www.utc.wa.gov/regulatedIndustries/utilities/energy/Pages/netMetering.aspx
	Utilities and Transportation Commission: Interconnection	http://www.utc.wa.gov/docs/Pages/InterconnectionRulemaking.aspx
Community solar	Washington State Legislature: Renewable Energy System Cost Recovery	http://app.leg.wa.gov/RCW/default.aspx?cite=82.16.120
	Washington State Legislature: Definition of Community Solar	http://apps.leg.wa.gov/rcw/default.aspx?cite=82.16.110
Programs and incentives	Washington State Department of Revenue: Renewable Energy/Green Incentives	http://dor.wa.gov/Content/FindTaxesAndRates/TaxIncentives/IncentivePrograms.aspx#Energy
	Washington State Department of Revenue: Sales/Use Exemption for Renewable Energy Systems (update)	http://dor.wa.gov/Docs/Pubs/SpecialNotices/2013/sn_13_EnergyHeatSurvey.pdf
	Washington State Department of Revenue: Renewable Energy System Cost Recovery Incentive Payment Program	http://dor.wa.gov/Docs/Pubs/Incentives/RenewableEnergyFactSheet.pdf
	Washington State Department of Revenue: Renewable Energy Equipment Approved for “Made in Washington”	http://dor.wa.gov/Docs/Pubs/IndustSpecific/ManufacturingList.pdf
	Washington State Legislature: Renewable Energy System Cost Recovery	http://apps.leg.wa.gov/WAC/default.aspx?cite=458-20-273
	Pacific Power: Blue Sky Community Project Funds	https://www.pacificpower.net/env/bsre/cpf/cfr.html

Clark Public Utility District: Solar Loan Program	https://www.clarkpublicutilities.com/residential-customers/reduce-energy-waste-and-lower-your-bill/all-rebates-incentives-and-low-interest-loans/solar-energy-program/solar-loan-program/
Okanogan Public Utility District: Conservation Loans	https://www.okanoganpud.org/energy-services/residential-conservation-loans
Orcas Power and Light: Member Owned Renewable Energy	http://energysavings.opalco.com/energy-savings/renewable-generation/m-o-r-e/

West Virginia

Renewable Portfolio Standard: None

Carve-out: None
Tracking system: PJM-Generation Attribute Tracking System (PJM-GATS)

West Virginia repealed its Renewable Portfolio Standard (RPS) in 2015, although solar credits can still be traded in the Pennsylvania and Ohio solar renewable energy credit markets. Net metering and interconnection rules in the state serve as the main drivers for mid-market solar customers up to 2 MW. However, the lack of third-party ownership limits the viability of power purchase agreement business models, thus place demands for up-front capital.

NET METERING

All utilities in West Virginia are required to offer net metering to retail customers. In 2015, a bill was passed to prohibit the cross-subsidiztion of ratepayers deemed to be caused by net metering rariffs. The Public Service Commission (PSC) is reviewing and revising net metering rules.

System size limit: Varies depending on customer and electric utility type

IOUs with 30,000 or more customers: residential **25 kW**, commercial **500 kW**, industrial **2 MW**

IOUs with fewer than 30,000 customers: residential **25 kW**, commercial **50 kW**, industrial **50 kW**

Aggregate cap: 3% of previous year's peak demand

Credits: Net excess generation is credited at the retail rate

RECs: Not addressed

Meter aggregation: Meter aggregation is allowed

INTERCONNECTION

West Virginia offers standard interconnection for distributed generation systems up to **2 MW**, using IEEE 1547 as the technical standard of evaluation. There are two levels of review, based on system capacity:

Eligible Systems	Type of Interconnection
Inverter based systems **≤50 kW**	Level 1: maximum application fee $30; screening process up to 15 days
Inverter based systems **>50kW** and **≤2 MW**	Level 2: maximum application fee $50 + $1/kW of capacity; screening process up to 25 days

System capacity limit: 2 MW

Liability insurance: Requirement varies by system size and type as established by PSC

External disconnect switch: Not required for inverter-based, certified systems **≤25 kW**; utilities decide on requirement for systems >25 kW

THIRD PARTY OWNERSHIP

Third-party solar power purchase agreements (PPAs) are restricted in West Virginia.

COMMUNITY SOLAR

Both physical and virtual meter aggregation is allowed within a single electric utility's service territory. Currently there are no statewide community solar programs in West Virginia. However, there are community solar projects led by cooperatives, communities, and developers.

STATE INCENTIVE PROGRAMS

West Virginia currently does not have any statewide financial incentives for midmarket solar.

UTILITY INCENTIVE PROGRAM

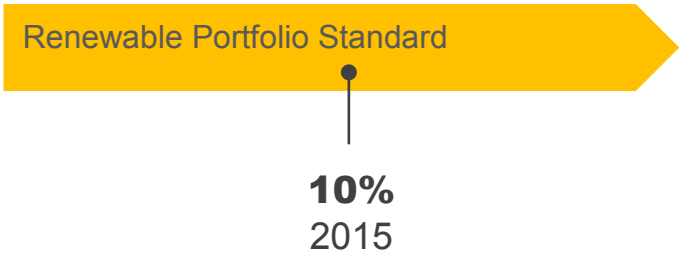
Please check with local utility for utility incentive programs.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net Metering and Interconnection	West Virginia Public Service Commission Rules Governing Electric utility Net Metering Agreements and Interconnection	http://apps.sos.wv.gov/adlaw/csr/ruleview.aspx?document=7029
Community Solar	West Virginia Solar United Neighborhoods: Solar Co-ops	http://www.wvsun.org/solar-coops/

Wisconsin



Carve-out: 1600 MW by 2020 as a part of Class I renewables
Tracking system: Midwest Renewable Energy Tracking System (MRETS)

Investor-owned utilities (IOUs), municipal utilities, and electric cooperatives are obligated to provide a certain percentage of renewable electricity to their retail customers.

Wisconsin's net metering program does not cover midscale solar generation. Incentives are available through renewable energy certificates (RECs) and several state incentives.

NET METERING

Wisconsin offers net metering to customers of IOUs and municipal utilities for systems **≤20 kW**. However, some utilities allow net metering for systems larger than 20 kW (e.g., Xcel Energy, We Energies, and Madison Gas and Electric).

Utilities may not charge customers fees in addition to minimum monthly charges that apply to other utility customers. Utilities may have other buy-back rates.

System size limit: **20 kW**

Aggregate cap: None

Credit: Varies by utility

RECs: Not addressed

Meter aggregation: Meter aggregation is not addressed

INTERCONNECTION

Wisconsin has interconnection standards for distributed generation systems up to 15 MW. IOUs and municipal utilities compliance is mandatory, while electric cooperatives' adaption of the standards is encouraged.

Distributed generation systems are divided into four categories under different timelines and requirements.

Eligible Systems	Type of Interconnection
≤20 kW	Category 1 (10 days engineering review; 10 days distribution system study; no fee)
>20 kW and ≤200 kW	Category 2 (15 days engineering review; 15 days distribution system study; $250 application fee)
>200 kW and ≤1 MW	Category 3 (20 days engineering review; 20 days distribution system study; $500 application fee)
>1 MW and ≤15 MW	Category 4 (40 days engineering review; 60 days distribution system study; $1000 application fee)

System size limit: 15 MW

Liability insurance: Varies by system size, type, and sector

External disconnect switch: Required

THIRD PARTY OWNERSHIP

Third-party power purchase agreements (PPAs) are allowed in Wisconsin.

COMMUNITY SOLAR

Wisconsin does not currently have a statewide community solar policy. A number of utilities offer community solar programs.

STATE INCENTIVES

Program	Administrator	Incentive
Commercial and Industrial Renewable Energy Loan Program	Focus on Energy Program	Focus on Energy will provide zero-interest loans to finance up to 50% of a renewable project's financed cost. The loan is capped at $500,000 for commercial and industrial customers located in a participating utility.
Biogas, Solar, and Wind Energy Equipment Exemption	Wisconsin Department of Revenue	Any value added by solar energy systems is exempt from general property taxes.
Renewable Energy Sales Tax Exemptions	Wisconsin Department of Revenue	100% sales and use tax exemption for commercial, industrial, and residential users of renewable technologies including PV.

UTILITY INCENTIVES

Utility Program	Incentive	Eligibility
River Falls Municipal Utilities Renewable Energy Finance Program	Loan amounts up to $50,000 per property	Residential customers

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Public Service Commission of Wisconsin: Renewable Portfolio Standard Compliance	http://psc.wi.gov/renewables/rpsCompliance.htm
Net Metering and Interconnection	Public Service Commission of Wisconsin: Customer-Sited Electric Generating Facilities	http://psc.wi.gov/renewables/netMetering.htm
	Public Service Commission of Wisconsin: Electric Utility Tariffs	http://psc.wi.gov/apps40/tariffs/default.aspx?tab=1
	Public Service Commission of Wisconsin: Distributed Generation Interconnection Procedures	http://psc.wi.gov/utilityinfo/electric/distributedGeneration/interconnectionProcedure.htm
Community Solar	Renew Wisconsin: list of community solar utility programs	http://renewwisconsin.org/action/CommunitySolar.htm
Programs and incentives	Focus on Energy Program: Public Benefits Fund providing financial and technical assistance for renewables	https://focusonenergy.com/
	Wisconsin State Legislature: Statute on Sales Tax Exemption	http://docs.legis.wisconsin.gov/statutes/statutes/77/III/54/56
	Wisconsin Department of Revenue: Renewable Energy Systems Property Tax Exemption	https://www.revenue.wi.gov/businesses/incentives/factsheets/renewable-energy.pdf
Other	Wisconsin Distributed Resources Collaborative	http://www.wisconsindr.org/

Wyoming

Renewable Portfolio Standard: None

Carve-out: None
Tracking system: Western Renewable Energy Generation Information System (WREGIS)

Wyoming does not have a renewable energy portfolio standard and no renewable energy credits to incentivize solar customers. It net metering program is limited to systems up to 25 kW, hindering additional income stream for mid-market solar.

NET METERING

Wyoming's statewide net metering policy applies to investor owned utilities, electric cooperatives, and irrigation districts. However, the maximum system capacity eligible for the program is 25 kW, which excludes mid-market customers from participation.

System size limit: 25 kW

Aggregate cap: Not specified

Credit: Kilowatt-hour credit at retail rate. Utilities may not charge customers fees in addition to minimum monthly charges that apply to other utility customers

RECs: Not applicable

Meter aggregation: Meter aggregation is not addressed

INTERCONNECTION

The Wyoming Public Service Commission has not established standard interconnection rules or procedures for systems that are not net metered.

System size limit: 25 kW

Liability insurance: Not required

External disconnect switch: System owners are required to install and are responsible for the cost of a manual external disconnect switch.

THIRD PARTY OWNERSHIP

The status of third-party power purchase agreements (PPAs) is unclear in Wyoming.

COMMUNITY SOLAR

There are currently no statewide community solar policies or programs in Wyoming.

STATE INCENTIVE PROGRAMS

There are no statewide solar financial incentive programs in Wyoming.

UTILITY INCENTIVE PROGRAMS

Please check with distribution utility for utility incentive programs for mid-market solar.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Net metering and interconnection	Wyoming Legislature: Title 37	http://legisweb.state.wy.us/statutes/compress/title37.doc
	Rocky Mountain Power: Wyoming Net Metering	https://www.rockymountainpower.net/env/nmcg/nm/wyoming.html

Washington, D.C.

Renewable Portfolio Standard

50%
2032

Carve-out: 5% of retail sales must come from solar energy
Tracking system: PJM Generation Attribute Tracking System (PJM-GATS)

Washington DC's Renewable Portfolio Standard Expansion Amendment Act increased its RPS to 50% by 2032. Tier 1 requirement includes solar energy, indicating that solar RECs used to comply with the solar requirement may also be used to meet the Tier 1 requirement.

Washington D.C.'s RPS solar carve-out and limited space for solar development have kept SREC prices high. Recent DC solar initiatives (e.g., the Solar Advantage Plus Program) have targeted low-income residents. Small businesses may be able to leverage resources from the DC Sustainable Energy Utility program. The District enacted community solar enabling legislation in 2013.

NET METERING

The District's net metering policy became effective in May 2000. Net metering applies to residential and commercial customer-generators with systems powered by renewable-energy sources. DC's net-metering rules require that metering equipment must be capable of measuring the flow of electricity in two directions. Credits for monthly net excess generation (NEG) vary based on the size of the generator. Utilities must offer a standard net-metering contract approved by the Public Service Commission of the District of Columbia (DCPSC).

System size limit: 1 MW for customer-owned generation; 5 MW limit for community renewable energy facilities

Aggregate cap: Not specified

Credit: Retail rate for systems less than 100 kW and generation rate for systems greater than 100 kW

RECs: Customers retain ownership of RECs unless indicated otherwise

Meter aggregation: Virtual net metering is allowed for community solar

INTERCONNECTION

The District's interconnection rules apply to all distributed systems 10 MW or smaller that are not subject to the interconnection rules of the PJM Interconnection. The rules set four levels of review for interconnection requests. The level of review required is generally based on system capacity, whether system components are certified, and the type of distribution circuit.

Eligible Systems	Type of Interconnection
Certified, Inverter-based system ≤10 kW	Level 1 interconnection
Certified systems ≤ 2 MW	Level 2 interconnection

Systems not exporting power to the grid (area networks: **≤50 kW**; radial distribution networks: **≤10 MW**)	Level 3 interconnection
Systems **≤10 MW**	Level 4 interconnection

System size limit: **10 MW**

Liability insurance: Facilities **>1 MW** must carry general liability insurance with coverage of a minimum $2 million per occurrence and $4 million in aggregate. The insurance policy also needs to list the utility as an additional insured party

External disconnect switch: Vary by level (required for level 2, 3, and 4.)

THIRD PARTY OWNERSHIP

Third-party power purchase agreements (PPAs) are allowed in the District of Columbia.

COMMUNITY SOLAR

DC allows community solar sales through Community Renewable Energy Facilities (CREFs). CREFs may be up to **5 MW** and must have at least two subscribers. CREF subscribers can meet up to 120% of their electricity demand with CREF credits. CREF subscribers are compensated according to a "CREF credit rate," which currently reflects generation and distribution costs and excludes transmission costs. The CREF rate is lower than retail rate.

STATE INCENTIVE PROGRAMS

Program	Administrator	Incentive
Sustainable Energy Utility (SEU)	District Department of Energy and Environment	In 2008, the District's Clean and Affordable Energy Act created the Sustainable Energy Utility (SEU). The SEU is operated by a coalition of private companies under contract to the District Department of Energy and Environment (DOEE). The SEU administers the Sustainable Energy Trust Fund (SETF), with annual funding of $20 million for various energy efficiency and clean energy initiatives. Businesses are not eligible for the program's solar PV incentives (available to income-qualified residents); however, businesses may leverage various SEU financial and technical resources during project development. The SEU disbursed $4.75 million in incentives to DC businesses in FY 2014.
Property Tax Incentives	The Office of Tax and Revenue	100% property tax exemption for solar energy systems and cogeneration systems.

RESOURCES

The list below provides some resources for each type of policy or program. Please reference and contact relevant authorities and local utilities for the most up-to-date and accurate information on state and utility policies and incentive programs.

Renewable Portfolio Standard	Public Service Commission of the District of Columbia	http://www.dcpsc.org/Utility-Information/Electric/Renewables/Renewable-Energy-Portfolio-Standard-Program.aspx
Net metering and interconnection	PEPCO: Green Power Connection (DC)	http://www.pepco.com/my-home/save-money-and-conserve-energy/renewable-energy/green-power-connection/dc/regulations,-rules,-tariffs-and-guidelines-dc/
	Title 15 D.C. Municipal Regulations	http://www.dcregs.dc.gov/Gateway/TitleHome.aspx?TitleNumber=15
Community solar	Community Renewable Energy Facility	http://www.pepco.com/community-commitment/renewable-energy/green-power-connection/dc/dc-community/
	PEPCO: Guide to Community Solar in the District of Columbia	http://www.pepco.com/uploadedFiles/wwwpepcocom/Content/Page_Content/GPC/Pepco%20DC%20Cref%20Training.pdf
	DC Sun: Community Solar	http://www.dcsun.org/community-solar/
Programs and incentives	Department of Energy & Environment: EnergySmart DC Solar Initiatives	http://doee.dc.gov/solar
	Department of Energy & Environment: Energy Choice DC	http://doee.dc.gov/service/energychoice
	DC Sun: Solar Incentives	http://www.dcsun.org/resources/solar-incentives/
Other	DC SUN	http://www.dcsun.org/
	District of Columbia Sustainable Energy Utility	https://www.dcseu.com/