Celebrating 15 Years of State Leadership

Clean Energy States Alliance

DISTRIBUTED GENERATION IN STATE RENEWABLE PORTFOLIO STANDARDS

Prepared for

The RPS Collaborative

by

Samantha Donalds
Clean Energy States Alliance

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About This Report

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Disclaimer

Introduction

In 2016-2017, the Clean Energy States Alliance (CESA) conducted a survey on how distributed generation (DG) is incorporated into state renewable portfolio standards (RPS). CESA collected responses from all 30 states[1] that currently have a mandatory RPS requirement.[2] This report, prepared by CESA for The RPS Collaborative, provides a summary of the results from that survey.

Definitions of distributed generation vary widely. For the purposes of this survey, CESA defined distributed generation as relatively small systems that generate electricity at or near the point of use, without respect to how the system is connected to the grid. Projects that might fall under this definition include solar, small wind, geothermal, fuel cells, waste-to-energy, CHP, and micro hydro.

Including DG in an RPS can be challenging. Most RPS programs were not created with small-scale renewable energy projects in mind, so existing program requirements and regulations may not apply to small generators, or may exclude them. It is generally easier for utilities and state governments to monitor and regulate one large electricity generator than many smaller generators in scattered locations. Indeed, making DG systems eligible for inclusion in an RPS often requires state regulators to draft specific regulations or clarify existing regulations. Furthermore, electric utilities may be required to spend additional time monitoring, approving, and/or reporting on DG interconnection requests or incentive applications. Finally, DG system owners (which often include individual utility customers) may also be called upon to fulfill application and reporting requirements, and spend time and money to ensure that equipment standards are met.

Despite these challenges, many states support the inclusion of DG in their RPS programs. RPS eligibility can be an effective way to advance clean energy markets, and there are many good reasons to support the DG sector. Common benefits of DG include:

- Increased electric system reliability
- Reduced (or deferred) needs for transmission and distribution system investments
- Avoided electric generation plant investment (or purchases of energy and capacity from wholesale markets)
- Reduced emissions
- Reduced consumption of nonrenewable fuels

[1] For simplicity, the District of Columbia is classified as a state and referred to as one of the 30 states included in this analysis.

[2] CESA received survey responses from every state except MD and NJ; for these two states, the report author filled out a survey with information from the state's RPS code and statues, and from the website of the RPS implementation agency of that state.

Public interest in clean, locally generated power is increasing. As smaller-scale energy systems continue to be installed across the country, it may make sense to count this generation towards a state's renewable energy requirement.

This paper provides an overview of how states across the country currently incorporate DG into their RPS programs. Its purpose is not to advocate for including DG into RPSs or to propose a single best way to include DG, but rather to provide a general introduction to the topic and to describe current state practices.

Survey Results

Below is a summary of the responses to CESA's survey, which included questions about the following topics.

Eligibility

DG is eligible for inclusion, in some capacity, in the RPS of 29 out of 30 states surveyed. The only state that answered "no" to eligibility was Montana.

Definitions of Distributed Generation or Related Terms

Ten states[3] (AZ, CO, IL, MN, NM, OH, PA, VT, WA and WI) provide a specific definition of "distributed generation" in their RPS code or statutes.[4]

Specific state definitions of DG often include various elements/restrictions: system size limits, interconnection requirements, what side of the meter the system is on, what technologies are eligible, and who owns and uses the system and the power generated (utility or ratepayer).

Two states (AZ and CO) distinguish between multiple different types of distributed generation.

> **AZ**: "Distributed generation" is defined, as is "distributed solar electric generator" and "wholesale distributed generation component" (non-utility generators selling to the utility).
>
> **CO**: "Retail" and "wholesale" distributed generation are both defined.[5]

In nine states (DC, DE, MD, MO, NH, NV, OR, RI and TX), the RPS does not define the term "distributed generation," but similar terms with related or overlapping meanings are defined. These terms include: customer-generator, customer-sited, self-generator, on-site, and behind-the-meter. Some states (AZ, CO, PA) define both DG and similar terms. Pennsylvania, for instance, has separate definitions for DG and customer-generators.

Nine states do not have a definition of DG or a related term in their RPS statutes or code: CA, HI, IA, MA, ME, MI, NC, NJ and NY.

For a full list of definitions, see Appendix 1.

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[3] In Connecticut, the PSC's administrative code does include definitions of DG, but these definitions were written for a program that is no longer in operation, and they are not considered to be applicable to the current RPS program. These definitions are included in the Appendix out of interest, and because they are technically still part of the administrative code which pertains to the state's RPS, but since they are not currently used, the information about CT in the main body of this report reflects CT's current practices.

[4] Some states (for example, Hawaii) did not define DG or a related term in their RPS, but their interconnection or net metering rules provide definitions and rules related to distributed generation. These were not reviewed for this report, as they are not necessarily related to the RPS.

[5] The main difference between the two is that "retail" DG primarily serves the customer's load on-site, while "wholesale" DG does not. However, there is an exception built into the definition of wholesale DG for solar gardens (which are considered retail).

Size Limits

Twelve states (AZ, CO, IL, MN, MO, NV, OR, PA, TX, VT, WA and WI), specify a size limit within their definition of DG.[6] These size limits vary considerably, from 50 kW or less for residential systems in Pennsylvania to 30 MW or less in Colorado. In some states, there are size limits only for specific technologies, or the size limits vary by technology. Size limits listed below apply to all DG technologies in that state unless otherwise noted.

AZ: Distributed wind is defined as 1 MW or less. No other size restrictions.

CO: Wholesale DG is 30 MW or less. No size limits for retail DG.

IL: 2 MW or less

MN: 10 MW or less

MO: 100 kW or less

NV: 1 MW or less

OR: 20 MW or less ("community renewables"), 500 kW – 5 MW or less ("small solar").

PA: For "distributed generation systems," the size limit is 5 MW or less. For customer-generators, the limits are: 50 kW or less for residential systems; and 3 MW or less for "customer service" (non-residential) locations, except for customers with systems between 3-5 MW or less who make their systems available to operate in parallel with the electric utility during grid emergencies.

TX: 1 MW or less ("microgenerator"), 10 MW or less ("small producer").

VT: 5 MW or less. (Utilities may petition for a specific larger project if they show that they have been unable to meet the requirement from facilities with a plant capacity less than 5 MW.)

WA: 5 MW or less

WI: 15 MW or less

Besides the overall size thresholds attached to the definitions of DG, some state RPS programs have other size limits associated with DG systems. These include sizes at which self-reporting is allowed (4 states – CA, MA, MI, MO), or estimating output rather than using a meter (7 states –

[6] Some states do not have size limits attached to a definition of DG in their RPS, but other rules or requirements, such as interconnection or net metering requirements, specify size limits related to the inclusion of DG in their programs. (For instance, New York has a 5 MW DG interconnection limit.) Size limits such as these were not reviewed for this report, as they are not necessarily related to the RPS.

DC, MD, MI, NC, NH, NM, PA), as well as size limits at which DG systems are eligible for certain programs or incentives.

In some states, the size limit is proportional to the load.

NV: Systems that generate 100 percent of the customer's energy are not considered "customer-generators," and are not eligible for net metering.

CO: Customer-side systems cannot earn renewable energy certificates (RECs) if they are sized to produce more than 120 percent of the average annual load.

Off-Grid Systems

Off-grid DG systems (stand-alone power systems) are eligible to earn RECs in 12 states: AZ, CA, CO (for residential systems only), CT, DE, DC, MA, NC, NM, RI, TX, and WA. Two of these states (MA and RI) specified that the off-grid systems must be located in-state.

Off grid DG systems are NOT eligible to earn RECs in 16 states: CO (for rural and non-residential systems), HI, IL, ME, MD (for solar PV), MI, MN, NH, NJ, NV, NY, OH, OR, PA, VT, and WI.

In three states, the rules regarding the RPS eligibility of off-grid DG systems are unclear or unspecified: IA, MD (for technologies besides solar PV), MO.

Out-of-State Generation

Eighteen states allow out-of-state DG systems to qualify for their state's RPS. These states are CA, CT, DC, DE, IL, MA, MD, ME, MI, MN, MO, NC, NY, OH, OR, PA, RI, and WA.

Many of these states have specified restrictions on eligible out-of-state DG systems, including requirements that:

- Associated electricity from DG systems must be deliverable to a common independent system operator (ISO) (CT, DE, MD, OR, PA), or within the same state (OH)
- Systems must be interconnected with the transmission or distribution system (MA, PA, RI)
- Only specific technologies are eligible (MD)

Other states have restrictions on whether out-of-state DG systems can earn certain types or RECs or be included in carve-outs:

IL: Out-of-state resources are not eligible for the DG carve-out.

CT: DG systems must be located in-state to earn SHRECs, ZRECs and LRECs[7], and CHP systems must be located in-state to qualify.

[7] SHRECs (Solar Home Renewable Energy Credits) are generated by residential solar PV. Zero Emission Renewable Energy Credits (ZRECs) are awarded to solar, wind or hydro customer-generators between 100 kW and 1 MW. Low Emission Renewable Energy Credits (LRECs) are awarded to solar, wind, hydro, fuel cells, biomass, or landfill gas

DC: Out-of-state solar systems do not qualify for the Tier 1 solar carve-out.

VT: DG systems must be interconnected to the Vermont distribution system to be eligible for the Tier 2 RES.

MA: Out-of-state solar systems are not eligible to earn SRECs.

Eight states explicitly do not allow out-of-state DG systems to qualify: AZ, HI, NH, NM, NV, TX, VT, and WI.

In three states (CO, IA, NJ) the rules are unclear.

Multipliers

Only one state offers a multiplier specifically for distributed generation: Washington, which has a 2x multiplier for DG.

Four states used to offer multipliers for DG, or they currently offer multipliers for generation from previous years: AZ, CO, DE, and NV.

Five states offer multipliers for what could be considered sub-sets or overlaps of DG:

CO: 1.5x multiplier to electric co-ops for energy generated by community solar gardens

ME: 1.5x multiplier for community-based renewable projects under 10 kW

MA: Solar carve-out provides tiered incentives through an SREC factor, with higher SREC values awarded to smaller systems

MO: 1.25x multiplier for in-state generation

OR: 2x multiplier for solar PV between 500 kW and 5 MW installed within Oregon prior to 2016

In many states, DG is eligible to earn multipliers in other categories, most commonly solar multipliers.

Carve-Outs

Five states (AZ, CO, IL, NM, and VT) have a DG carve-out (as distinct from a solar carve-out that may allow larger systems, as in NC), meaning that a certain amount of DG is required.

AZ: 30 percent of the annual renewable energy requirement. Half of this must be from residential installations and half from non-residential, non-utility installations.

CO: 3 percent of retail sales by 2020 must come from distributed generation, including at least 1.5 percent (half of the DG requirement) from retail net-metered DG resources and up

customer-generators up to 2 MW in capacity. (These terms are defined for CT only.)

to 1.5 percent from wholesale DG resources. (Retail DG is favored.) For electric co-ops, the DG requirement is less.

IL: 1 percent of the annual renewable energy requirement, with at least 0.5 percent from DG smaller than 25 kW

NM: 3 percent of the annual RPS requirement (0.6 percent of sales)

VT: 1 percent by 2017, increasing by 0.6 percent every year until reaching 10 percent by 2032

Two states have carve-outs specifically for distributed solar:

MA: Massachusetts' two SREC programs (SREC-I and SREC-II) are designed to support more than 1600 MW of distributed solar.

MN: 0.15 percent of total electric sales for each public utility must be procured from solar PV systems 20 kW in capacity or less.

One state has a goal (not mandatory) for what could be considered a sub-set or overlap of DG:

OR: By 2025, at least 8 percent of Oregon's aggregate electrical capacity should come from small-scale renewable energy projects with a capacity of 20 MW or less. Combined heat and power facilities using biomass are eligible for this goal, and are not restricted by the 20 MW cap.

Several other states have solar carve-outs for which distributed solar could be eligible.

In Connecticut, there are no multipliers or carve-outs, but utilities are required to spend a certain amount each year on ZREC (solar, wind or hydro customer-generators between 100 kW and 1 MW) and LREC (solar, wind, hydro, fuel cells, biomass, or landfill gas customer-generators up to 2 MW in capacity) contracts, and to sell a portion of their load through SHRECs (residential solar PV systems).

Estimating Production

For owners of small renewable energy systems, the cost of a meter can be prohibitive, and might outweigh the potential earnings from REC sales. To address this barrier to RPS participation, some states have developed less strict metering requirements for DG systems.

Fourteen states (AZ, CO, DC, HI, ME, MD, MI, MO, NC, NH, NM, PA, TX, and WI) allow at least some DG systems to estimate output rather than use a meter. In most of these cases, the restrictions and limitations on estimating output for DG systems are technology-specific:

- In four states (CO, DC, NC, PA), estimating is only allowed for distributed solar system
- In New Hampshire, estimating is only allowed for small renewable thermal systems

- In Maryland estimating is only allowed for on-site solar PV under 10 kW, and for geothermal and residential solar hot water; biomass thermal systems are required to have meters
- In Maine, only certain CHP systems can use estimates of production as a surrogate for metering

Wisconsin's restriction on estimating DG output is not based on technology type: meters are required for utility-owned DG systems, but estimating is allowed for customer-owned DG systems.

Two states (IL and OH) have less stringent metering requirements for certain DG systems, but both firmly state that estimating is not allowed under any circumstances.

IL: New meters are not required for solar PV systems under 25 kW – refurbished meters are allowed. Solar PV systems smaller than 10 kW can use an inverter.

OH: Facilities of 6 kW or smaller can use a meter that is not revenue grade.

Texas allows estimating for DG systems, but imposes a negative multiplier as a penalty.

In the states covered by the Western Electricity Coordinating Council (WECC), the Western Renewable Generation Information System (WREGIS) tracking system requires all facilities generating RECs within its system to be metered with a revenue-grade meter, which explains why most western states (CA, NV, OR, TX, WA, UT, WA) explicitly disallow estimating DG output. (At least one state specifically cited this as the reason in its survey response.) An exception is Colorado, which allows estimating for distributed solar, and does not require that DG facilities smaller than 1 MW register and record their RECs with WREGIS. The other WREGIS state that allows estimation is New Mexico, which permits it for systems smaller than 25 kW in rural electric cooperative territories.

Expedited or Simplified Production Data Reporting Process

In at least seven states (CA, CO, MA, MI, MO, NC, and WA), DG systems may be eligible for an expedited or simplified REC production reporting process.

Below are some state-specific rules concerning expedited or simplified REC production reporting procedures for DG systems.

CA: DG systems have an option to certify as an aggregate facility to reduce the reporting burden, with an aggregated facility cap of 360 kW

CO: DG facilities smaller than 1 MW are not required to register and record their RECs with WREGIS.

MA: Solar PV units smaller than 10 kW can self-report production

MI: Systems 1 MW or smaller can self-report

MO: Systems 1 MW or smaller can self-report

NC: Solar PV systems 10 kW or smaller and renewable thermal systems are required to report production data less frequently than other power producers – every 12 months as opposed to every month.

In addition to these state rules, WREGIS allows customer-sited DG systems under 360 kW in their member states to self-report REC production data. Many western states (for example, CA and OR) have adopted this rule as their own.

Other Rules that Are Relaxed for DG

There are a few additional ways in which states make it easier for DG systems to participate in an RPS.

HI: Small projects (5 MW or less, or smaller than 1 percent of the firm capacity of the utility) are exempt from the competitive bidding requirement.

NC: Systems under 2 MW are not required to get a Certificate of Public Convenience and Necessity (CPCN), which is an authorization to construct a generating facility.

NH: Customer-sited sources under 15 kW in capacity are exempt from annual independent inspections.

Caps on Eligible Generation

In California, DG is generally classified as "Portfolio Content Category 3," which is capped at 10 percent of the total RPS obligation. Some DG is not subject to the cap, including DG systems owned by local publicly owned electric utilities and DG systems that are interconnected to the grid and do not serve behind-the-meter load.

In Maryland, residential solar hot water systems are limited to producing a maximum of 5 SRECs (solar RECs) per year.

REC Sales

State RPS programs have a wide range of rules and methods regarding the sale of DG RECs, with varying degrees of strictness. Some states have technology and size-specific rules. Other states do not regulate how DG producers participate in the REC market.

Below is an overview of six options available to states.

1. ***Sell RECs to third-party brokers or aggregators.***
   - At least one state (Illinois) mandates that RECs from DG be aggregated.

- States may help facilitate this. In Pennsylvania, for example, the state website where a system owner registers a renewable energy system also provides a list of all the local aggregators that can be used to manage the sale of RECs.

2. ***Automatically transfer RECs to a utility or other incentive program administrator.*** This is required in five states, but in four of them the rule only applies to solar programs.
   - **CT**: Solar Home Renewable Energy Credits (SHRECs) generated by residential solar PV are automatically property of the Connecticut Green Bank.[8]
   - **DE**: SRECs from solar PV systems under 50 kW are automatic property of the utility, for the first 20 years that the system runs.
   - **MN**: Customers of Xcel and Minnesota Power transfer their RECs to the utility in exchange for incentives under a utility-run reward program.
   - **MO**: As a condition of receiving a rebate for on-site solar electric systems, REC ownership is transferred to the utility for a period of 10 years.
   - **NV**: If solar DG utility customers receive an incentive under the SolarGenerations program, the RECs are assigned to the respective utility.

3. ***Surrendering RECs associated with excess generation sold back to the utility through net metering arrangements.*** Currently, some form of net metering (or other form of compensation for excess generation) for DG systems is allowed in 44 states. In two states (HI and NC), DG system owners receiving net metering credits are required to sell their RECs to their local distribution utility. In Vermont, recently approved net metering rules also provide for a reduction in net metering credit value for customers not selling their RECs to local utilities.

4. ***Selling RECs directly to utilities.*** In two states (NV and NM), the only option available for non-solar DG REC sales is a direct sale to the relevant utility. In addition, Missouri allows utilities to use standard offer contracts for the purchase of SRECs produced by a customer-generator system, while state investor-owned utilities are required to offer rebates for the first 25 kW of installed capacity for customer-sited PV systems under 100 kW.

5. ***Provide discretion to the entities (e.g., states, RTOs/ISOs and, occasionally, PUCs) sponsoring REC tracking systems, or otherwise require use of tracking systems.*** This is an approach most common in areas with restructured electricity markets. As an example, the District of Columbia has no restrictions as to how REC owners can sell their RECs, but all

[8] In addition, nonresidential customer-side DG resources (typically, CHP systems) that receive incentives from the state's Conservation and Load Management (C&LM) are required to remit 25 percent of the revenue from sales of Class III to the C&LM Fund if they do not receive a C&LM fund incentive - unless the project was submitted on or prior to March 9, 2007.

RECs must be created and tracked through PJM-GATS. Similarly, Connecticut requires that all RECs be created and tracked through NEPOOL-GIS.

6. ***Offer load-serving entities (LSEs) right of first refusal for purchasing RECs.*** In a characteristic unique to Maryland, solar generators are required to offer SRECs for sale to Maryland electricity suppliers prior to offering them for sale to any other buyer. In order to help generators comply with this requirement, the Public Service Commission operates a website where generators can post SREC offers.

Some states do not mandate how RECs are sold, but they do mandate that buyers and sellers enter into a formal agreement (California for instance).

Many states allow for a combination of methods for DG customers to sell their RECs.

In four states (ME, OH, OR, and PA), there are no specific rules or restrictions at the state level regarding REC trading and sales applicable to DG.

Conclusion

Based on the survey results, below are several general conclusions about how states incorporate distributed generation in their RPS programs:

- Most states provide a definition of DG or a related term in their RPS. The specific terms that states use to define and describe DG vary widely, but generally share common characteristics.
- States vary in their requirements for DG systems to be eligible – size restrictions, whether interconnection is required, and whether it must be located in-state.
- A few states differentiate between utility-owned DG systems and "customer-generator" systems, and some states have distinct rules for residential DG systems.
- States have developed a variety of methods to support the inclusion of DG in their RPSs by allowing estimating, allowing self-reporting, offering multipliers, creating carve-outs, offering expedited or simplified reporting processes, and facilitating REC sales.
- Some RPS programs support certain DG technologies, usually distributed solar, or support certain project types, such as community solar.
- The most well-defined and regulated type of DG is solar, particularly residential solar. Distributed solar has the most specific rules and regulations surrounding it.
- In some states, the definitions and rules regarding DG are vague in one or more ways.
- A state's practices related to DG in its RPS can be influenced by the procedures and rules of the regional tracking system it uses.
- In general, the clearer the provisions for distributed generation to be included in the RPS, the easier it will be for a DG system to qualify and be approved for inclusion. Clear and specific rules can also be easier to enforce.

APPENDIX 1 – DEFINITIONS OF DG AND SIMILAR TERMS

The RPS laws and/or rules of ten states (AZ, CO, IL, MN, NM, OH, PA, VT, WA, WI) provide a specific definition of the term "distributed generation." The state of Connecticut does define DG, but that definition in no longer in use.

* In nine states (DC, DE, MD, MO, NH, NV, OR, RI, TX), the RPS does not define the term "distributed generation," but similar terms with related or overlapping meanings are defined.

** Some states (AZ, CO, PA) define distributed generation as well as related terms.

ARIZONA**

"**Distributed Generation**" is defined in the Renewable Energy Standard and Tariff rules as "electric generation sited at a customer premises, providing electric energy to the customer load on that site or providing wholesale capacity and energy to the local Utility Distribution Company for use by multiple customers in contiguous distribution substation service areas. The generator size and transmission needs shall be such that the plant or associated transmission lines do not require a Certificate of Environmental Compatibility from the Corporation Commission."

"**Distributed Solar Electric Generator**" means electric generation sited at a customer premises, providing electric energy from solar electric resources to the customer load on that site or providing wholesale capacity and energy to the local Utility Distribution Company for use by multiple customers in contiguous distribution substation service areas. The generator size and transmission needs shall be such that the plant or associated transmission lines do not require a Certificate of Environmental Compatibility from the Corporation Commission.

"**Wholesale Distributed Generation Component"** means non-utility owners of Eligible Renewable Energy Resources that are located within the distribution system and that do not require a transmission line over 69 kv to deliver power at wholesale to an Affected Utility to meet its Annual Renewable Energy Requirements.

"**Distributed Renewable Energy Resources**" is defined as "applications of the following defined technologies that are located at a customer's premises and that displace Conventional Energy Resources that would otherwise be used to provide electricity to Arizona customers..." Those technologies are: biogas electricity generator, biomass electricity generator, geothermal generator, fuel cells that use only renewable fuels, new hydropower generator of 10 MW or less, solar electricity resources, biomass thermal systems, biogas thermal systems, commercial solar pool heaters, geothermal space heating and process heating systems, renewable combined heat and power system, solar daylighting, solar HVAC, solar industrial process

heating and cooling, solar space cooling, solar space heating, solar water heater, and wind generator of 1 MW or less. Each of those technologies is also defined in the rules.

Source: *Ariz. Admin. Code §14-2-1801 et seq. Pages 172-174:* *http://apps.azsos.gov/public_services/Title_14/14-02.pdf*

COLORADO**

Colorado's RPS specifies two types of renewable distributed generation. The main difference between the two is that retail DG primarily serves the customer's load on site, while wholesale DG does not. (Though there is an exception for solar gardens which are considered retail.)

"**Retail renewable distributed generation**" means a renewable energy resource that is located on the premises of an end-use electric consumer and is interconnected on the end-use electric consumer's side of the meter. For the purposes of this definition, the non-residential end-use electric customer, prior to the installation of the renewable energy resource, shall not have its primary business being the generation of electricity for retail or wholesale sale from the same facility. In addition, at the time of the installation of the renewable energy resource, the non-residential end-use electric customer must use its existing facility for a legitimate commercial, industrial, governmental, or educational purpose other than the generation of electricity. Retail renewable distributed generation shall be sized to supply no more than 120 percent of the average annual consumption of electricity by the end-use electric consumer at that site. The end-use electric consumer's site shall include all contiguous property owned or leased by the consumer, without regard to interruptions in contiguity caused by easements, public thoroughfares, transportation rights-of-way, or utility rights-of-way.

"**Wholesale renewable distributed generation**" means a renewable energy resource with a nameplate rating of 30 MW or less that does not qualify as retail renewable distributed generation.

Other related definitions:

"**On-site solar system**" means a solar renewable energy system that is retail renewable distributed generation.

"**Rural renewable project**" means a renewable energy resource with a nameplate rating of 30 MW or less that interconnects to electric transmission or distribution facilities owned by a cooperative electric association or municipally owned utility at a point of interconnection of 69 kV or less.

Source: *Colorado Electric Rules, Pages 130-131* *https://drive.google.com/file/d/0B8qvU2knU8BkcEJneE93YkNRQmM/view*

CONNECTICUT

In Connecticut, the Public Utility Regulatory Authority (PURA) administrative code includes definitions of DG, but these definitions were written for a program that is no longer in operation, and they are not considered to be applicable to the current RPS program. These definitions are included in the Appendix out of interest, and because they are technically still part of the administrative code which pertains to the state's RPS, but since they are not currently used, the information about CT in the main body of this report reflect CT's current practices.

Connecticut defines two types of DG: customer-side and grid-side. The main difference between the two is whether the system is interconnected on the end user's side of the electricity meter or is interconnected directly to the transmission or distribution system. Connecticut also defines a "distributed energy resource."

"**Customer-side distributed resources**" means (A) the generation of electricity from a unit with a rating of not more than 65 MW on the premises of a retail end user within the transmission and distribution system including, but not limited to, fuel cells, photovoltaic systems or small wind turbines, or (B) a reduction in the demand for electricity on the premises of a retail end user in the distribution system through methods of conservation and load management, including, but not limited to, peak reduction systems and demand response systems.

"**Grid-side distributed resources**" means the generation of electricity from a unit with a rating of not more than 65 MW that is connected to the transmission or distribution system, which units may include, but are not limited to, units used primarily to generate electricity to meet peak demand.

"**Distributed energy resource**" means any (A) customer-side distributed resource or grid-side distributed resource that generates electricity from a Class I renewable energy source or Class III source, and (B) customer-side distributed resource that reduces demand for electricity through conservation and load management, energy storage system which is located on the customer-side of the meter or is connected to the distribution system or microgrid.

Source: *Chapter 277, Department of Energy and Environmental Protection, Public Utilities Regulatory Authority, Office of Consumer Counsel, Miscellaneous Provisions, Section 16-1: Definitions.* https://www.cga.ct.gov/current/pub/chap_277.htm#sec_16-1

DISTRICT OF COLUMBIA*

Behind-the-meter generator or BTM generator - a renewable on-site generator that is located behind a retail customer meter such that no utility-owned transmission or distribution facilities are used to deliver the energy from the generating unit to the on-site generator's load.

Customer generation - generation that is not principally dedicated for sale into the wholesale electricity market.
Renewable on-site generator - a person that generates electricity on site from a Tier One renewable source or Tier Two renewable source for the person's own use.

Source: *DC Municipal Regulations, Chapter 15-29 – Renewable Energy Portfolio Standard*
http://www.dcregs.dc.gov/Gateway/ChapterHome.aspx?ChapterNumber=15-29

DELAWARE*

"**Customer-sited generation**" means a generation unit that is interconnected on the end-use customer's side of the retail electricity meter in such a manner that it displaces all or part of the metered consumption of the end-use customer.

Source: *Delaware Code, Title 26 (Public Utilities), Chapter 1 (Public Service Commission), Subchapter III-A (Renewable Energy Portfolio Standards)*
http://delcode.delaware.gov/title26/c001/sc03a/

ILLINOIS

"**Distributed renewable energy generation device**" means a device that is:

1. powered by wind, solar thermal energy, photovoltaic cells and panels, biodiesel, crops and untreated and unadulterated organic waste biomass, tree waste, and hydropower that does not involve new construction or significant expansion of hydropower dams;
2. interconnected at the distribution system level of either an electric utility as defined in this Section, an alternative retail electric supplier as defined in Section 16-102 of the Public Utilities Act, a municipal utility as defined in Section 3-105 of the Public Utilities Act, or a rural electric cooperative as defined in Section 3-119 of the Public Utilities Act;
3. located on the customer side of the customer's electric meter and is primarily used to offset that customer's electricity load; and
4. limited in nameplate capacity to no more than 2 MW.

Source: *Illinois Power Agency Act – Article 1, Section 1.*
http://www.ilga.gov/legislation/ilcs/ilcs5.asp?ActID=2934&ChapterID=5

MARYLAND*

"**Renewable on–site generator**" means a person who generates electricity on site from a Tier 1 renewable source or a Tier 2 renewable source for the person's own use.

Source: *Maryland Statutes, Article – Public Utilities, 7-701*
http://mgaleg.maryland.gov/webmga/frmStatutesText.aspx?article=gpu&section=7-701&ext=html&session=2015RS&tab=subject5

MINNESOTA

"**Distributed generation**" means a facility that:

1. has a capacity of 10 MW or less;
2. is interconnected with a utility's distribution system, over which the commission has jurisdiction; and
3. generates electricity from natural gas, renewable fuel, or a similarly clean fuel, and may include waste heat, cogeneration, or fuel cell technology.

Source: *2016 Minnesota Statutes, 216B.164 Cogeneration and Small Power Production.*
https://www.revisor.mn.gov/statutes/?id=216B.164

MISSOURI*

Customer-generator means the owner or operator of a qualified electric energy generation unit that meets all the following criteria:

1. Is powered by a renewable energy resource;
2. Is an electrical generating system with a capacity of not more than 100 kW;
3. Is located on premises that are owned, operated, leased, or otherwise controlled by the customer-generator;
4. Is interconnected and operates in parallel phase and synchronization with an electric utility and has been approved for interconnection by said electric utility;
5. Is intended primarily to offset part or all of the customer-generator's own electrical energy requirements;
6. Meets all applicable safety, performance, interconnection, and reliability standards established by the National Electrical Code, the National Electrical Safety Code, the Institute of Electrical and Electronics Engineers, Underwriters Laboratories, the Federal Energy Regulatory Commission, and any local governing authorities; and
7. Contains a mechanism that automatically disables the unit and interrupts the flow of electricity onto the electric utility's electrical lines whenever the flow of electricity to the customer-generator is interrupted.

Source: *Missouri Revised Statutes, Chapter 386 (Public Service Commission), Section 890.1.*
http://www.moga.mo.gov/mostatutes/stathtml/38600008901.html

NEVADA*

A "**customer-generator**" is defined as a user of a net metering system. Net metering systems are defined as supplemental on-site renewable energy systems smaller than 1 MW. Systems that generate 100% of the customer-generator's annual requirements for electricity are not included in this term. The definition includes specifications particular to wind and hydroelectric.

Source: *Nevada Revised Statutes, Chapter 704 – Regulation of Public Utilities Generally (http://leg.state.nv.us/NRS/NRS-704.html#NRS704Sec771) and Nevada Administrative Code, Chapter 701B – Renewable Energy Programs (http://www.leg.state.nv.us/nac/NAC-701B.html).*

NEW HAMPSHIRE*

"**Customer-sited source**" is defined as "a source that is interconnected on the end-use customer's side of the retail electricity meter in such a manner that it displaces all or part of the metered consumption of the end-use customer."

Source: *Title XXXCIV (Public Utilities), Chapter 362-F: Electric Renewable Portfolio Standard http://www.gencourt.state.nh.us/rsa/html/XXXIV/362-F/362-F-mrg.htm*

NEW MEXICO

Distributed generation means electric generation sited at a customer's premises, providing electric energy to the customer load at that site or providing electric energy to a public utility or a rural electric distribution cooperative for use by multiple customers in one or more contiguous distribution substation service areas.

Source: *Title 17 (Public Utilities and Utility Services), Chapter 9 (Electric Services), Part 572 (Renewable Energy for Electric Utilities), Section 7 (Definitions) http://164.64.110.239/nmac/parts/title17/17.009.0572.htm*

OHIO

"**Distributed generation**" means electricity production that is on-site and is connected to the electricity grid.

Source: *Ohio Administrative Code, Chapter 4901:1-40 [Utilities – Alternative Energy Portfolio Standard] http://codes.ohio.gov/oac/4901%3A1-40*

OREGON*

Community Renewables are defined as small-scale renewable energy projects with a generating capacity of 20 MW or less.

Small solar is defined as solar PV projects with a capacity of 500 kW to 5 MW.

Source: *Oregon RPS Statute* *https://www.oregonlegislature.gov/bills_laws/ors/ors469A.html*

PENNSYLVANIA**

Distributed generation systems – The small-scale power generation of electricity and useful thermal energy from systems with a nameplate capacity not greater than 5 MW.

Customer-generator—A retail electric customer that is a nonutility owner or operator of a net metered distributed generation system with a nameplate capacity of not greater than 50 kW if installed at a residential service or not larger than 3 MW at other customer service locations, except for customers whose systems are above 3 MW and up to 5 MW who make their systems available to operate in parallel with the electric utility during grid emergencies as defined by the regional transmission organization or where a microgrid is in place for the primary or secondary purpose of maintaining critical infrastructure, such as homeland security assignments, emergency services facilities, hospitals, traffic signals, wastewater treatment plants or telecommunications facilities, provided that technical rules for operating generators interconnected with facilities of an EDC, electric cooperative or municipal electric system have been promulgated by the institute of electrical and electronic engineers and the Commission.

Source: *Pennsylvania Code, CHAPTER 75. ALTERNATIVE ENERGY PORTFOLIO STANDARDS*
http://www.pacode.com/secure/data/052/chapter75/chap75toc.html

RHODE ISLAND*

"**Customer-sited generation facility**" means a generation unit that is interconnected on the end-use customer's side of the retail electricity meter in such a manner that it displaces all or part of the metered consumption of the end-use customer;

"**Self-generator**" means an end-use customer in Rhode Island that displaces all or part of its retail electricity consumption, as metered by the distribution utility to which it interconnects, through the use of a customer-sited generation facility, the ownership of any such facility shall not be considered an obligated entity as a result of any such ownership arrangement;

Source: *Rhode Island Statutes – Title 39, Chapter 39-36: Renewable Energy Standard*
http://webserver.rilin.state.ri.us/Statutes/TITLE39/39-26/39-26-2.HTM

TEXAS*

The closely related term "**microgenerator**" is defined as: A customer who owns one or more eligible renewable energy generating units with a rated capacity of less than 1 MW operating on the customer's side of the utility meter.

Other related terms that are defined include:

Small producer: A renewable resource that is less than 10 MW in size.

Generation offset technology: Any renewable technology that reduces the demand for electricity at a site where a customer consumes electricity. An example of this technology is solar water heating.

Off-grid generation: The generation of renewable energy in an application that is not interconnected to a utility transmission or distribution system.

Source: *Chapter 25, Subchapter H, Division 1* *http://www.puc.texas.gov/agency/rulesnlaws/subrules/electric/25.173/25.173.pdf*.

VERMONT

"Distributed renewable generation" means one of the following:

> (i) a renewable energy plant that is new renewable energy; has a plant capacity of 5 MW or less; and
>
> > (a) is directly connected to the sub-transmission or distribution system of a Vermont retail electricity provider; or
> >
> > (b) is directly connected to the transmission system of an electric company required to submit a Transmission System Plan under subsection 218c(d) of this title, if the plant is part of a plan approved by the [Public Service] Board to avoid or defer a transmission system improvement needed to address a transmission system reliability deficiency identified and analyzed in that Plan; or
>
> (ii) a net metering system approved under the former section 219a or under section 8010 of this title if the system is new renewable energy and the interconnecting retail electricity provider owns and retires the system's environmental attributes.

Source: *30 V.S.A. § 8005* *http://legislature.vermont.gov/statutes/section/30/089/08005*

WASHINGTON

"**Distributed generation**" means an eligible renewable resource where the generation facility or any integrated cluster of such facilities has a generating capacity of not more than 5 MW.

Source: *Revised Code of Washington, Chapter 19, Section 285 (RCW 19.285)*
http://apps.leg.wa.gov/rcw/default.aspx?cite=19.285&full=true

WISCONSIN

"**Distributed generation facility**" means a facility for the generation of electricity with a capacity of no more than 15 MW that is located near the point where the electricity will be used or is in a location that will support the functioning of the electric power distribution grid.

Source: *Wisconsin Statutes, 196:496*
http://docs.legis.wisconsin.gov/statutes/statutes/196/496/1




Clean Energy States Alliance
50 State Street, Suite 1
Montpelier, VT 05602
802.223.2554
cesa@cleanegroup.org
www.cesa.org

The Clean Energy States Alliance (CESA) is a national, nonprofit coalition of public agencies and organizations working together to advance clean energy. CESA members—mostly state agencies—include many of the most innovative, successful, and influential public funders of clean energy initiatives in the country.

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