BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO

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In the Matter of the Commission's Review) of Chapter 4901:1-22, Ohio Administrative Code, Regarding Interconnection Services.

Case No. 12-2051-EL-ORD

COMMENTS BY THE OFFICE OF THE OHIO CONSUMERS' COUNSEL

I. **INTRODUCTION**

Interconnection services allow consumers, who install generation equipment, to tie into the electric distribution system. If a customer's household produces more electricity than is consumed in a month, then the customer can sell the excess generation to the utility through a net-metering agreement. In this case the Public Utilities Commission of Ohio ("PUCO" or "Commission") must fulfill its duty under R.C. 119.032 to review the rules that govern electric interconnection services for customer generation. The PUCO reviews these rules every five years to determine whether to continue the rules without change, amend the rules, or rescind the rules.¹

In its review the Commission is required to consider the purpose, scope, and intent of the statute, whether changes should be made to permit more flexibility at the local level, where changes should be made to eliminate unnecessary paperwork, and whether the rule duplicates, overlaps or conflicts with other rules.² Additionally, the Commission must consider the continued need for the rule, the nature of any complaints

¹ See R.C. 119.032(C).

 $^{^{2}}$ See id.

or comments received concerning the rule, and other relevant factors that may have changed in the subject matter area affected by the rule.³

By Entry dated October 17, 2012, the PUCO requested comments concerning Ohio Adm. Code Chapter 4901:1-22, Interconnection Services. The Office of the Ohio Consumers' Counsel ("OCC") welcomes the opportunity to offer these comments on behalf of all of the approximately 4.2 million residential customers of Ohio electric distribution utilities ("EDUs"). In its Entry, the Commission indicates that it is seeking general comments on the recommended revisions and requests specific comments regarding the following: 1) the interconnection application process; 2) standard procedures for field-tested equipment; 3) minimizing financial risk for EDUs; 4) removing the 20 megawatt capacity limit for generating facilities; and 5) requiring that the interconnection queue be made publicly available.⁴

II. COMMENTS

A. The Interconnection Application Process

The PUCO Staff proposes revisions to the interconnection application process that are intended to "simplify and expedite the interconnection process."⁵ The Staff's approach is the correct one for Ohioans. The interconnection process—and customers involved in it—could benefit from simplification. The rules should be modified to minimize the time necessary for interconnection applications to be approved. The renewable energy requirements in R.C. 4928.64 have led many customers to install distributed energy systems, such as solar photovoltaics and wind turbines. Ohio's EDUs

³ See id.

⁴ Entry at 3-4.

⁵ *Id.* at 3.

now have the experience necessary to improve the interconnection application process that was last modified following the Energy Policy Act of 2005 in PUCO Case No. 05-1500-EL-COI.

OCC offers the following comments aimed at improving and clarifying the application process for Ohioans:

- 1. In Ohio Adm. Code 4901:1-22-02(A)(2), restore the term "electric distribution system" and delete the first proposed instance of "EDU" in this paragraph for clarity.
- 2. In Ohio Adm. Code 4901:1-22-04(4)(b), after "target date" add the words "within chapter time frames." This change will benefit customers by clarifying that the interconnection process timing is defined within the chapter.
- 3. Regarding Ohio Adm. Code 4901:1-22-05(A)(1)(a), the PUCO Staff proposes to limit the use of a "short form" application for interconnection to generating equipment of ten kilowatts or less.⁶ This is a change from the current rule that provides for the use of a "short form" application for interconnection of generating equipment of fifty kilowatts or less. OCC proposes that the use of a "short form" application be made available for interconnection of generating equipment of twenty-five kilowatts or less. That is the level used (25 kW) in the Interstate Renewable Energy Council model rules and Washington (state) is about to approve new rules that set 25 kW for tier $1.^{7}$ A number of local developers have also indicated to OCC that they support an increase. This change will benefit customers by allowing more interconnections to qualify for the simpler Level 1 path. The grid structure, transformers, switches and other infrastructure to these sites is already built to easily support and handle much larger distributed generation without significant impact.

⁶ Attachment B of the Commission's Entry (October 17, 2012) at page 8.

⁷ See http://irecusa.org/wp-content/uploads/2010/01/IREC-Interconnection-Procedures-2010final.pdf.

4. Regarding Ohio Adm. Code 4901:1-22-06(B)(1)(h), if the intent of the PUCO Staff's proposed language is for the distributed generation facility not to exceed five percent of the area network's maximum load, then the sentence needs to be rewritten as follows:

"If the distributed generation facility is interconnected to an area network, then the aggregate of all other facilities interconnected to that area network may not exceed five percent of the area networks' maximum load."

This change clarifies the sentence.

5. Regarding Ohio Adm. Code 4901:1-22-06(D)(1), it is OCC's understanding that some EDUs do not charge residential customers for simple interconnections. Accordingly, the phrase "cannot exceed" should be inserted before "fifty dollars" and the phrase "will be" should be deleted. Additionally, the phrase "and can be waived" should be inserted after "fifty dollars." With OCC's edits, Ohio Adm. Code 4901:1-22-06(D)(1) should state as follows:

"The EDU's tariff for a level 1 fee cannot exceed fifty dollars and can be waived."

This change will benefit customers by allowing the practice of not charging consumers for simple interconnections to continue.

B. Standard Procedures for Field-Tested Equipment

The Commission seeks comments on whether an interconnection rule recognizing standard procedures for field-tested equipment would quicken the interconnection review process.⁸ Under the PUCO Staff's proposal, interconnection equipment would be considered field-tested if the utility has previously approved interconnection equipment for use in its service territory that is identical to the interconnection equipment being

⁸ Entry at 3.

proposed. Additionally, the EDU would then maintain a database of field-tested equipment certified for use in its service territory and make the database available to developers.

This proposal should be adopted. Having Ohio EDUs maintain (for public consumption) a database of field-tested equipment would quicken the interconnection review process and avoid needless formal customer complaints before the PUCO in cases where an EDU rejects a customer's interconnection application. There is little need to expend resources to repeatedly test interconnection equipment that the EDU has already tested. OCC's understanding is that for the Level 1 applications, some utilities are not testing interconnection equipment that has already been tested in a previous installation. This would especially be beneficial to interconnection equipment that is not certified IEEE 1547, such as, but not limited to, used generation equipment that has been tested with added electronics (such as programmed relays) to permit its safe and harmonically benign interconnection.

C. Minimizing Financial Risk for EDU

The Commission also seeks feedback regarding whether the rules should specify the types of financial security instruments that an applicant could post to guarantee that the EDU's interconnection-related costs are covered as they accrue.⁹ Such a rule is also intended to provide applicants with greater flexibility to post securities to cover the EDU's costs as they accrue and become more certain.

OCC is unaware of any instances where EDUs have experienced financial harm in interconnecting customers with large installations. However, if a risk mitigation strategy

⁹ Id. at 3-4.

is adopted, then it should not be financially or administratively burdensome for the customer.

D. Removing the 20 Megawatt Capacity Limit

The Commission is seeking comments on whether the 20 megawatt capacity limit for generating facilities should be removed.¹⁰ OCC maintains that the20 megawatt capacity limit for generating facilities should be removed from the interconnection rules. As long as the interconnection technical and safety requirements are met, no limit is necessary. Removing the capacity limit could help EDUs more easily meet their Alternative Energy Requirements and would support the current state legislative and PUCO efforts to promote industrial Combined Heat and Power installations.¹¹ Further, OCC Attachment A shows 12 states with no such limits on capacity.

E. Publicly Available Interconnection Queue

Finally, the Commission also seeks comments on whether the interconnection rules should require that the interconnection queue be made publicly available, much like the PJM queue.¹² The queue is a list of customer interconnections that are scheduled. It also provides information on the size, type, and location of the generation being interconnected. Presently the queue is available only to the EDUs.

A publicly available interconnection queue can "provide developers and EDUs with greater predictability regarding the feasibility and costs of interconnecting at a certain location."¹³ This result would occur because the queue would alert developers of

¹⁰ *Id.* at 4.

¹¹ R.C. 4928.66(A)(1)(a), as amended by Am. Sub. S.B. 315, signed into law on June 11, 2012 and effective September 10, 2012.

¹² Entry at 4.

¹³ *Id*.

potential bottlenecks on an existing distribution line. With this information, developers could choose to relocate projects. This would be especially valuable information for Level 2 and Level 3 projects of larger size whose owners may have geographic flexibility in siting their generation. This is information that is generally already being collected by the EDUs, so little additional utility resources should be needed to implement this proposal.

III. CONCLUSION

OCC submits its comments on the PUCO Staff's proposed changes to the rules that govern interconnection in order to assist the Commission with modifying the rules to serve customers and others involved in the electric interconnection process. The interconnection customer application process should be simple and take no more time than is necessary for review. In addition, the Commission should eliminate the need for repeated field testing of interconnection equipment, remove the 20 MW capacity limit on generating facilities and make the interconnection queue publicly available. Also, if the Commission adopts a risk mitigation strategy regarding EDUs' costs, it should not be financially or administratively burdensome for customers.

OCC appreciates this opportunity to comment on the PUCO Staff's proposed changes to these rules. The PUCO should adopt OCC's proposals for serving the increasing interest of Ohioans in interconnecting their own generation with electric utilities.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I served a true copy of the foregoing Comments upon the

following parties listed below via electric transmission, this 19th day of November, 2012.

/s/ Melissa R. Yost Melissa R. Yost Assistant Consumers' Counsel

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State Interconnection Standards for Distributed Generation Information provided by the Database of State Incentives for Renewables and Efficiency (DSIRE)

			(Updated A	pril 27, 2012)				
State	Eligible Renewable / Other Technologies	Applicable Sectors	Utilities	Limit on System Capacity	Interconnection	Insurance Requirements	External Disconnect	Required
					Agreement		Switch	
Alaska	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Ocean Thermal	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	Utilities with annual retail sales of 5,000,000 kWh or more	25 kW	Varies by utility	Varies by utility	No	Yes
Arizona	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, CHP/Cogeneration, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential	Investor-owned utilities, SRP	Varies by utility	Varies by utility	Vary by utility	Varies by utility	No
Arkansas	Solar Thermal Electric, Photovoltaics, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells using Renewable Fuels, Microturbines	Commercial, Industrial, Residential, General Public/Consumer, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	All utilities (municipal utilities not subject to PSC rules)	300 kW for non- residential; 25 kW for residential	Yes	Not addressed	Not required for certain inverter-based systems; required for all other systems	Yes
California	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential	Investor-owned utilities	No limit specified	Yes	Vary by system size and/or type; levels established by CPUC	Varies by utility and system size	No
Colorado	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, CHP/Cogeneration, Anaerobic Digestion, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Utility, Agricultural, Institutional	All utilities (except certain small municipal utilities)	10 MW	Yes	Vary by system size and/or type; levels established by PUC	Not addressed	No
State	Eligible Renewable / Other	Applicable Sectors	Applicable	Limit on System	Standard	Insurance Requirements	External Disconnect	Net-Metered
otate	reclinologies	Applicable Sectors	otinties	capacity	Agreement	insurance nequirements	Switch	Required
Connecticut	Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, (All Electric Customers)	Investor-owned utilities	20 MW	Yes	Vary by system size and/or type; levels established by PUC	Required	No
Delaware	Solar Thermal Electric, Photovoltaics, Wind, Biomass, Hydroelectric, Fuel Cells, Anaerobi Digestion, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	All utilities (only Delmarva is subject to PSC rules)	10 MW (limit of Delmarva's standard interconnection agreement) 1 MW for non- renewable cogenerators and small power producers	Yes	Vary by system size and/or type	Required	No
District of Columbia	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Ocean Thermal, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Institutional	Investor-owned utilities	10 MW	Yes	Vary by system size and/or type; levels established by PSC	Not required for inverter-based systems up to 10 kW; required for all other systems	No
Federal	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomas, Hydroelectric, Geothermal Electric, CH/Cogeneration, Anaerobic Digestion, Small Hydroelectric, Tdal Energy, Wave Energy, Ocean Thermal, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Tribal Government, Fed. Government, Agricultural, Institutional	FERC standards generally apply to all transmission-level interconnection; state standards generally apply to distribution-level interconnection	20 MW	Yes	"Additional liability insurance" required only "if necessary as a function of owning and operating a generating facility"	Not addressed	No
Florida	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, CHP/Cogeneration, Hydrogen, Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Ocean Thermal	Commercial, Industrial, Residential, General Public/Consumer, Nonprofit, Schools, Local Government, State Government, Tribal Government, Fed. Government, Agricultural, Institutional	Investor-owned utilities	2 MW	Yes	Vary by system size and/or type; levels established by PSC	Not required for inverter-based systems up to 10 kW; required for all other systems	Yes
State	Technologies	Applicable Sectors	Applicable Utilities	Capacity	Standard Interconnection	Insurance Requirements	External Disconnect	Required
					Agreement		Switch	
Georgia	Photovoltaics, Wind, Fuel Cells, Fuel Cells using Renewable Fuels	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Institutional	All utilities	100 kW for non- residential; 10 kW for residential	No	"Additional" liability insurance not required for systems that meet certain technical standards	Not addressed	Yes
Hawaii	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, State Government, Fed. Government	Investor-owned utilities	No limit specified	Yes	Generally required	Required	No
Illinois	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	Investor-owned utilities	No limit specified	Yes	Vary by system size and/or type; levels established by PSC	Required	No

Indiana	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Puel Cells, CHP/Cogeneration, Anaerobic Digestion, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	Investor-owned utilities, regulated municipal utilities, regulated electric cooperatives	No limit specified	Yes	Amount specified by IURC for net-metered systems; not specified for other systems	Utility's discretion	No
lowa	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, CHP/Cogeneration, Anaerobic Digestion	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	Investor-owned utilities, Linn County REC	10 MW*	Yes	Vary by system size and/or type; levels established by IUB	Utility's discretion	No
State	Technologies	Applicable Sectors	Utilities	Capacity	Interconnection	Insurance Requirements	External Disconnect Switch	Required
Kansas	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Small Hydroelectric, Fuel Cells using Renewable Fuels	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	Investor-owned utilities	200 kW for non- residential; 25 kW for residential	Yes	"Additional" liability insurance not required for systems that meet certain technical standards	Utility's discretion	Yes
Kentucky	Photovoltaics, Wind, Biomass, Small Hydroelectric	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Agricultural, Institutional	Investor-owned utilities, electric cooperatives (except TVA distribution utilities)	30 kW	Yes	"Additional" liability insurance not required for systems that meet certain technical standards	Utility's discretion	Yes
Louisiana	Photovoltaics, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells using Renewable Fuels, Microturbines	Commercial, Industrial, Residential, Agricultural	All utilities	Commercial and agricultural: 300 kW Residential: 25 kW	Yes	Not addressed	Not required for certain inverter-based systems; required for all other systems	Yes
Maine	Solar Thermal Electric, Photovoltaics, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Tidal Energy, Wave Energy, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government	All utilities	No limit specified	Varies by system size	Not required for inverter- based systems up to 1 MW; vary by system size and/or type for other systems	Not required	No
Maryland	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Geothermal Electric, Fuel Cells, CHP/Cogeneration, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal, Fuel Cells using Renewable Fuels, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	All utilities	10 MW	Yes	Vary by system size and/or type; levels established by PSC	Required	No
State	Eligible Renewable / Other Technologies	Applicable Sectors	Applicable Utilities	Limit on System Capacity	Standard Interconnection	Insurance Requirements	External Disconnect Switch	Net-Metered Required
Massachusetts	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government	Investor-owned utilities	No limit specified	Agreement Yes	Vary by system size and/or type; levels established by DPU	Utility's discretion	No
Michigan	Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Institutional	Investor-owned utilities, electric cooperatives	No limit specified	Yes	Vary by system size and/or type; levels established by PSC	Not addressed	No
Minnesota	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government	All utilities	10 MW	Yes	Vary by system size and/or type; levels established by PUC	Required	No
Missouri	Solar Thermal Electric, Photovoltaics, Wind, Hydroelectric, Fuel Cells using Renewable Fuels	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Institutional	All utilities	100 kW	Yes	Vary by system size and/or type; levels established by PSC	Utility's discretion	Yes
Montana	Photovoltaics, Wind, Hydroelectric	Commercial, Industrial, Residential, Schools, Local Government, State	Investor-owned utilities and cooperatives	10 MW	No	Not addressed	Required	No
State	Eligible Renewable / Other	Applicable Sectors	Applicable	Limit on System	Standard	Insurance Requirements	External Disconnect	Net-Metered Bequired
Nebraska	Photovoltaics, Landfill Gas, Wind, Biomass, Geothermal Electric, Anaerobic Digestion, Small	Commercial, Industrial, Residential, Agricultural	All utilities	25 kW	Agreement	"Additional" liability insurance not required for systems that meet certain technical	Switch Not addressed	Yes
Nevada	Hydroelectric Solar Thermal Electric, Photovoltaics, Wind, Biomass, Geothermal Flectric	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government,	Investor-owned utilities	20 MW	No	standards Vary by system size and/or type; levels established by PLIC	Not addressed	No
New Hampshire	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Hydroelectric, Geothermal Electric, CHP/Cogeneration, Small Hydroelectric, Tidal Energy, Wave Energy, Biodiesel, Other Distributed Generation Technologies	Fed. Government	All utilities	1 MW	No	Not required	Not required for inverter-based systems that comply with IEEE 1547 and UL 1741	Yes
New Jersey	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Geothermal Electric, Anaerobic Digestion, Tidal Energy, Wave Energy, Fuel Cells using Renewable Fuels	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Multi-Family Residential, Agricultural, Institutional	Investor-owned utilities (electric distribution companies)	No limit specified	Varies by system size	"Additional" liability insurance not required for systems that meet certain technical standards	Not required for systems that meet certain standards	No
New Mexico	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Small Hydroelectric, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government	Investor-owned utilities, electric cooperatives	80 MW	Yes	Generally not required for systems up to 250 kW. Utilities may require insurance for systems > 250 kW, with limits set by PRC.	Not required for inverter-based systems up to 10 kW; utility's discretion for all other systems	No
	Fligible Renewable / Other		Applicable	Limit on System	Standard			Net-Metered

State	Technologies	Applicable Sectors	Utilities	Capacity	Interconnection	Insurance Requirements	External Disconnect Switch	Required
New York	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Anaerobic Digestion, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	Investor-owned utilities	2 MW	Agreement Yes	Not required	Not required for inverter-based systems up to 25 kW; required for all other systems	No
North Carolina	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Anaerobic Digestion, Small Hydroelectric, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	Investor-owned utilities	No limit specified	Yes	Varies by system size and/or type; levels established by NCUC	Not required for inverter-based systems up to 10 kW (utility may choose to install at its own expense); utility's discretion for all other systems	No
Ohio	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government	Investor-owned utilities	20 MW	Yes	"Additional" liability insurance not required	Not required; If installed, must meet safety criteria	No
Oregon	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Anaerobic Digestion, Fuel Cells using Renewable Fuels	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	Investor-owned utilities (Idaho Power is exempt from interconnection standards for net-metered systems)	Greater than 20 MW for large generators; Up to 10 MW for small generators; 25 kW for residential net metered; 2 MW for non- residential net metered	Yes	"Additional" liability insurance not required; small generator facilities over 200 kW must have general liability insurance	Not required for inverter-based systems up to 25 kW; required for all other systems	No (separate interconnection standards exist for net-metered systems)
Pennsylvania	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Anaerobic Digestion, Small Hydroelectric, Fuel Cells using Renewable Fuels, Other Distributed Generation Technologies	Commercial, industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	Investor-owned utilities	5 MW* (for systems approaching or exceeding 2 MW applicants should contact the utility for guidance on the application process)	Yes	"Additional" liability insurance not required	Required	Yes
State	Eligible Renewable / Other Technologies	Applicable Sectors	Applicable Utilities	Limit on System Capacity	Standard Interconnection	Insurance Requirements	External Disconnect	Net-Metered Required
Puerto Rico	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, CHP/Cogeneration, Anaerobic Digestion, Small Hydroelectric, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Multi-Family Residential, Agricultural, Institutional, Other	PREPA	No limit specified	Agreement Yes	Vary by system size and/or type; levels established by PREPA	Required	No
Rhode Island	Solar Thermal Electric, Photovoltaics, Wind, Biomass, Hydroelectric, Geothermal Electric, Anaerobic Digestion, Small Hydroelectric, Ocean Thermal, Fuel Cells using Renewable Fuels	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Multi-Family Residential, Agricultural, Institutional	Investor-owned utilities	Not specified	No	Not addressed	Not addressed	No
South Carolina	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Anaerobic Digestion, Small Hydroelectric, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	Investor-owned utilities	100 kW for non- residential; 20 kW for residential	Yes	Vary by system size and/or type; levels established by PSC	Required	No
South Dakota	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, CHP/Cogeneration, Anaerobic Digestion, Small Hydroelectric, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Tribal Government, Fed. Government, Agricultural, Institutional	Investor-owned utilities	10 MW	Yes	Vary by system size and/or type; levels established by PUC	Utility's discretion	No
Texas	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, CHP/Cogeneration, Tidal Energy, Wave Energy, Ocean Thermal, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies Eligible Renewable / Other	Commercial, Industrial, Residential	Investor-owned utilities	10 MW Limit on System	Yes Standard	Not addressed	Required	No Net-Metered
State	Technologies	Applicable Sectors	Utilities	Capacity	Interconnection Agreement	Insurance Requirements	External Disconnect Switch	Required
Utah	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, Hydrogen, Anaerobic Digestion, Small Hydroelectric, Fuel Cells using Renewable Fuels	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	Investor-owned utilities, electric cooperatives	20 MW	Varies by system size	Systems 2 MW or less: Utility may not require interconnection customer to purchase additional liability insurance. Systems larger than 2 MW: Customer must purchase "prudent amounts of general liability insurance in an amount sufficient to protect other parties from any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees."	Not required for inverter-based systems up to 25 kW; required for all other systems	No
Vermont	Photovoltaics, Wind, Biomass, Fuel Cells, CHP/Cogeneration, Anaerobic Digestion, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Residential, Agricultural	All utilities	No limit specified	Yes	Not addressed	Required	No (separate interconnection standards exist for net-metered systems 150 kW and under)

Virginia	Solar Thermal Electric, Photovoltaics, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Tidal Energy, Wave Energy	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government	All utilities	20 MW	Varies by system size	Vary by system size and/or type; levels established by SCC	Utility's discretion	No (separate interconnection standards exist for net-metered systems)
Washington	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional	Investor-owned utilities	20 MW	Yes	"Additional" liability insurance generally not required for net- metered systems. For other systems, requirements vary by system application and/or size; levels established by UTC.	Generally required for systems up to 300 kW; not addressed for larger systems	No
West Virginia	CHP/Cogeneration, Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Small Hydroelectric, Renewable Fuels, Fuel Cells using Renewable Fuels	Commercial, Industrial, Residential, Agricultural	All utilities	2 MW	Yes	Vary by system size and/or type; levels established by PSC	Not required for inverter-based systems up to 25 kW; utility's discretion for all other systems	No
State	Eligible Renewable / Other Technologies	Applicable Sectors	Applicable	Limit on System	Standard	Insurance Requirements	External Disconnect	Net-Metered
		Applicable Sectors	otinties	Capacity	Agreement	insurance Requirements	Switch	Required
Wisconsin	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CH/PCogeneration, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, Fed. Government	Investor-owned utilities, municipal utilities	15 MW	Agreement	Vary by system size and/or type; levels established by PSC	Switch Required	No
Wisconsin	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Fuel Cells Wisroturbines, Other Distributed Generation Technologies Photovoltaics, Wind, Biomass, Hydroelectric	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government	Investor-owned utilities, municipal utilities Investor-owned utilities, electric cooperatives, irrigation districts	15 MW 25 kW	Agreement Yes No	Vary by system size and/or type; levels established by PSC Not addressed	Switch Required Required	No

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Summary: Comments Comments by the Office of the Ohio Consumers' Counsel electronically filed by Patti Mallarnee on behalf of Yost, Melissa Ms.