

## Distributed Generation Policies in MADRI States (DE, DC, IL, MD, NJ, OH, PA)

Prepared by the Regulatory Assistance Project

December 10, 2012

Distributed Generation Policy Comparison in MADRI States							
	DE	DC	IL	MD	NJ	OH	PA
Net metering grade <sup>1</sup>	A	A	B	A	A	A	A
Interconnection grade <sup>2</sup>	A	A	B	A	B	C	B
Net metering recommendations <sup>3</sup>	1) Allow net metering for third parties, using the PPA model.	1) Remove system size limitations to allow customers to meet all on-site energy needs; 2) Adopt stronger safe harbor language to protect customer-sited generations from extra and/or unanticipated fees; 3) Allow customers to retain RECs.	1) Remove system size limitations to allow customers to meet all on-site energy needs; 2) Expand net metering access to all customer classes.	1) Remove system size limitations to allow customers to meet all on-site energy needs; 2) Allow for meter aggregation across more customer classes.	1) Allow meter aggregation and net metering for additional customer classes.	1) Credit Net Excess Generation at the retail rate and provide the option of indefinite rollover; 2) Adopt safe harbor language to protect customer-sited generators from extra and/or unanticipated fees; 3) Specify that RECs belong to the customer.	1) Expand net metering to include all utilities (i.e., munis and co-ops).
Interconnection recommendations <sup>4</sup>	1) Eliminate the external disconnect switch requirement.	1) Increase covered system capacity to 20 MW; 2) Prohibit requirements for redundant external disconnect switch.	1) Expand interconnection procedures to all utilities (i.e., munis and co-ops).	1) Remove requirements for redundant external disconnect switch; 2) Increase limit on system size to 20 MW.	1) Adopt standard interconnection applications.	1) Remove requirements for redundant external disconnect switch; 2) Expand interconnection procedures to all utilities (i.e., munis and co-ops).	1) Remove requirements for redundant external disconnect switch for customers of IOUs; 2) Expand interconnection procedures to all utilities (i.e., munis and co-ops).
CHP-friendly policy score (out of a possible 5 points) <sup>5</sup>	2	0.5	2.5	1	3	3.5	2

<sup>1</sup> Interstate Renewable Energy Council and The Vote Solar Initiative, *Freeing the Grid 2012*, November 2012.

<sup>2</sup> Ibid. 1.

<sup>3</sup> Ibid. 1.

<sup>4</sup> Ibid. 1.

CHP capacity added between 2005-2010 (MW) <sup>6</sup>	0	0	104.8	7	14.1	94.6	80.9
Interconnection standard establishes parameters for including CHP (score out of a possible 1 point) <sup>7</sup>	0.5	0.5	1	0.5	0.5	1	0
Net metering regulations apply to CHP <sup>8</sup>	No	Yes	No	Yes	No	No	Yes

<sup>5</sup> ACEEE, *The 2012 State Energy Efficiency Scorecard*, October 2012. The grades are defined as follows: **Net metering grades:** "A" means full retail credit with no subtractions. Customers protected from fees and additional charges. Rules actively encourage use of DG. "B" means generally good net metering policies with full retail credit, but there could be certain fees or costs that detract from full retail equivalent value. There may be some obstacles to net metering. **Interconnection grades:** "A" means no restrictions on interconnection of DG systems that meet safety standards. Policies actively facilitate the interconnection of grid-tied customer DG and represent most or all state best practices. "B" means good interconnection rules that incorporate many best practices adopted by states. Few or no customers will be blocked by interconnection barriers. There may be some defects in the standards, such as a lack of standardized interconnection agreements and expedited interconnection to networks. "C" means adequate for interconnection, but systems incur higher fees and longer delays than necessary. Some systems will likely be precluded from interconnection because of remaining barriers in the interconnection rules.

<sup>6</sup> ACEEE, *Challenges Facing Combined Heat and Power Today: A State-by-State Assessment*, September 2011.

<sup>7</sup> Ibid. 5.

<sup>8</sup> Ibid. 1.

## Summary of Distributed Generation Information Excerpted from *FREEING THE GRID 2012*<sup>9</sup>

### Delaware

Net metering is allowed in Delaware for systems up to 25 kilowatts (kW) for residential customers of DP&L, DEC and municipal electric utilities; two megawatts (MW) per meter for non-residential customers of DP&L; and 500 kW per meter for non-residential customers of DEC and municipal utilities. Legislation enacted in July 2009 allows for indefinite rollover of NEG, grants customer-generators ownership of all RECs and increases the aggregate participation limit to 5% of peak load. Delaware greatly improved their interconnection rules in 2011 by adopting IREC's model standards.

#### Net metering in DE

<b>Eligible Renewable/Other Technologies:</b>	Photovoltaics, Wind, Biomass, Hydroelectric, Anaerobic Digestion, Small Hydroelectric, Fuel Cells
<b>Applicable Sectors:</b>	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional
<b>Applicable Utilities:</b>	All utilities
<b>System Capacity Limit:</b>	DP&L: 2 MW for non-residential DP&L customers; 500 kW non-residential DEC and municipal utility customers; 25 kW for all residential customers; 100 kW for all farm customers on residential rates
<b>Aggregate Capacity Limit:</b>	5% of peak demand (utilities may increase limit)
<b>Net Excess Generation:</b>	Credited to customer's next bill at retail rate; indefinite rollover permitted but customer may request payment at the energy supply rate at the end of an annualized period.
<b>REC Ownership:</b>	Customer retains ownership of RECs associated with electricity produced and consumed by the customer
<b>Meter Aggregation:</b>	Not addressed

#### Interconnection in DE

<b>Eligible Renewable/Other Technologies:</b>	Solar Thermal Electric, Photovoltaics, Wind, Biomass, Hydroelectric, Anaerobic Digestion, Fuel Cells, Other Distributed Generation Technologies
<b>Applicable Sectors:</b>	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional
<b>Applicable Utilities:</b>	All utilities (only Delmarva Power is subject to commission rules)
<b>System Capacity Limit:</b>	10 MW
<b>Standard Agreement:</b>	Yes
<b>Insurance Requirements:</b>	"Additional" liability insurance not required for systems that meet certain technical standards
<b>External Disconnect Switch:</b>	Required. Delaware Electric Cooperative exempts systems 25 kW or less.
<b>Net Metering Required:</b>	No

<sup>9</sup> Ibid. 1.

## District of Columbia

Net metering is currently available to D.C. residential and commercial customer-generators with systems powered by renewable-energy sources, combined heat and power (CHP), fuel cells and microturbines. Legislation enacted in October 2008 expanded the limit on individual system size from 100 kW to 1 MW. A 2008 PSC order clarified that NEG for small DG systems is credited at the full retail rate during a billing cycle. In February 2009 the D.C. PSC issued an order establishing interconnection procedures for systems up to 10 MW, using a four-tiered approach to screening criteria. These tiers specify a process for non-exporting systems and those connecting to networks.

### Net metering in DC

<b>Eligible Renewable/Other Technologies:</b>	Solar Thermal Electric, Photovoltaics, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, CHP/Cogeneration, Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Microturbines
<b>Applicable Sectors:</b>	Commercial, Residential
<b>Applicable Utilities:</b>	Investor-owned utilities
<b>System Capacity Limit:</b>	1 MW – however full retail rate net metering only applies to systems up to 100 kW
<b>Aggregate Capacity Limit:</b>	No limit specified
<b>Net Excess Generation:</b>	Credited to customer's next bill at the full retail rate for systems 100 kW or less or at generation rate (i.e., avoided cost) for systems larger than 100 kW; credits may be carried forward indefinitely
<b>REC Ownership:</b>	Customer and utility own RECs
<b>Meter Aggregation:</b>	Not addressed

### Interconnection in DC

<b>Eligible Renewable/Other Technologies:</b>	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, Microturbines, Other Distributed Generation Technologies
<b>Applicable Sectors:</b>	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Institutional
<b>Applicable Utilities:</b>	Investor-owned utilities
<b>System Capacity Limit:</b>	10 MW
<b>Standard Agreement:</b>	Yes
<b>Insurance Requirements:</b>	Systems under 1 MW do not face additional insurance requirements. Systems over 1 MW have additional insurance requirements.
<b>External Disconnect Switch:</b>	Not required for inverter-based systems up to 10 kW; required for all other systems
<b>Net Metering Required:</b>	No

## Illinois

Legislation enacted in 2011 and 2012 (S.B. 1652, H.B. 3036, and S.B. 3811) changed several aspects of net metering in Illinois. For customers in competitive classes as of July 1, 2011, the law prescribes a dual metering and bill crediting system which does not meet the definition of net metering as the term is generally defined. The law also increased the system capacity limit to 2 MW and the aggregate capacity limit to 5%. Additionally, agricultural residues, untreated and unadulterated wood waste, landscape trimmings, and livestock manure are added to the list of eligible resources. These aspects of the net metering law remained in place: Electric co-ops and municipalities are exempt; net excess generation rolls-over to the next billing period at the retail rate but expires at the end of the year; customers retain all RECs. The ICC is currently developing new rules in accordance with this legislation. Illinois' interconnection rules use a four-tiered approach to review interconnection applications. The rules specify provisions for non-exporting systems and those connecting to spot and area networks. All

systems are required to have an external disconnect switch directly accessible to the utility. Standardized interconnection agreements are available for all four tiers.

### Net metering in IL

<b>Eligible Renewable/Other Technologies:</b>	Photovoltaics, Wind, Biomass, Hydroelectric, Anaerobic Digestion, Small Hydroelectric, Fuel Cells using Renewable Fuels, Microturbines
<b>Applicable Sectors:</b>	Residential
<b>Applicable Utilities:</b>	Investor-owned utilities, alternative retail electric suppliers
<b>System Capacity Limit:</b>	2 MW
<b>Aggregate Capacity Limit:</b>	5% of utility's peak demand in previous year
<b>Net Excess Generation:</b>	Credited to customer's next bill at retail rate; granted to utility at end of 12-month billing cycle
<b>REC Ownership:</b>	Customer owns RECs
<b>Meter Aggregation:</b>	Allowed but not required

### Interconnection in IL

<b>Eligible Renewable/Other Technologies:</b>	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, Microturbines, Other Distributed Generation Technologies
<b>Applicable Sectors:</b>	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional
<b>Applicable Utilities:</b>	Investor-owned utilities
<b>System Capacity Limit:</b>	No limit specified
<b>Standard Agreement:</b>	Yes
<b>Insurance Requirements:</b>	Vary by system size and/or type; levels established by commission
<b>External Disconnect Switch:</b>	At utility's discretion
<b>Net Metering Required:</b>	No

### Maryland

Maryland enacted legislation in April 2007 requiring the state Public Service Commission to devise interconnection procedures, which were adopted in March 2008. There are four levels of interconnection available to customers of all utilities with systems up to 10 MW in capacity of all types of utilities. There is an equipment requirement equivalent to an external disconnect switch, but processing fees are limited to larger systems. The 2007 legislation also increased the capacity limit for net-metered systems to 2 MW and the aggregate system capacity to 1,500 MW. NEG rolls-over to the next month's bill until the end of year, at which point it is granted to the utility. In May 2009 the Maryland legislature enacted bills that allowed third-party ownership and included CHP as an eligible net metering technology. Legislation enacted in May of 2010, however, would have adversely affected how NEG would be valued -- (essentially at wholesale instead of retail rates) -- however the law was revised again through legislation in May 2011, which provides monthly rollover of net excess generation at the retail rate, and annual reconciliation at the wholesale energy rate. Customers retain RECs and are protected from any additional fees.

## Net metering in MD

<b>Eligible Renewable/Other Technologies:</b>	Photovoltaics, Wind, Biomass, Fuel Cells, CHP/Cogeneration, Anaerobic Digestion
<b>Applicable Sectors:</b>	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional
<b>Applicable Utilities:</b>	All utilities
<b>System Capacity Limit:</b>	2 MW generally, (30 kW for micro-CHP)
<b>Aggregate Capacity Limit:</b>	1,500 MW (~8% of peak demand)
<b>Net Excess Generation:</b>	Credited to customer's next bill at retail rate; reconciled annually at the retail energy rate
<b>REC Ownership:</b>	Customer owns RECs

## Interconnection in MD

<b>Eligible Renewable/Other Technologies:</b>	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Geothermal Electric, Fuel Cells, CHP/Cogeneration, All Distributed Generation, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal, Other Distributed Generation Technologies
<b>Applicable Sectors:</b>	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional
<b>Applicable Utilities:</b>	All utilities
<b>System Capacity Limit:</b>	10 MW
<b>Standard Agreement:</b>	Yes
<b>Insurance Requirements:</b>	Vary by system size and/or type; levels established by commission. No requirements for systems under 1 MW
<b>External Disconnect Switch:</b>	Required
<b>Net Metering Required:</b>	No

## New Jersey

New Jersey enacted legislation in 1999 requiring utilities to offer net metering to residential and small commercial customers which have been significantly improved upon since, making New Jersey a model state for net metering rules. In January 2010 New Jersey enacted legislation removing the 2 MW cap for net-metered systems and the BPU adopted this change in June 2010. Although there is no hard limit stated in the rules, the BPU is authorized to limit aggregate system capacity to 2.5% of utilities' peak demand. Net metering customers are also allowed to choose their annual period to take advantage of seasonal fluctuations in energy use and generation. In July 2012 New Jersey enacted legislation (S.B. 1925) requiring electric utilities to allow public entities such as state and local governments, local agencies and school districts to engage in "net metering aggregation" of solar facilities (implementing rules are not yet in place). Interconnection fees are divided into three levels, depending on system size and complexity. Utilities may not require Level 1 and Level 2 customers to install additional controls or 72 external disconnect switches not included in the equipment package, to perform or pay for additional tests, or to purchase additional liability insurance.

## Net metering in NJ

<b>Eligible Renewable/Other Technologies:</b>	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Geothermal Electric, Anaerobic Digestion, Tidal Energy, Wave Energy, Fuel Cells using Renewable Fuels
<b>Applicable Sectors:</b>	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Tribal Government, Fed. Government, Agricultural, Institutional
<b>Applicable Utilities:</b>	Investor-owned utilities (electric distribution companies); electric suppliers
<b>System Capacity Limit:</b>	System must be sized not to exceed the customer's electricity consumption during the previous year
<b>Aggregate Capacity Limit:</b>	No limit specified (commission may limit to 2.5% of peak demand)
<b>Net Excess Generation:</b>	Generally credited to customer's next bill at retail rate; excess reconciled at end of annual period at avoided-cost rate
<b>REC Ownership:</b>	Customer owns RECs
<b>Meter Aggregation:</b>	Permitted for public entity PV systems

## Interconnection in NJ

<b>Eligible Renewable/Other Technologies:</b>	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Geothermal Electric, Anaerobic Digestion, Tidal Energy, Wave Energy, Fuel Cells using Renewable Fuels
<b>Applicable Sectors:</b>	Commercial, Industrial, Residential
<b>Applicable Utilities:</b>	Investor-owned utilities (electric distribution companies)
<b>System Capacity Limit:</b>	No limit specified
<b>Standard Agreement:</b>	No
<b>Insurance Requirements:</b>	"Additional" liability insurance not required for systems that meet certain technical standards
<b>External Disconnect Switch:</b>	Not required for systems that meet certain standards
<b>Net Metering Required:</b>	No

## Ohio

The Public Utilities Commission of Ohio (PUCO) adopted revised interconnection procedures in March 2007 to provide for three levels of review for systems up to 20 MW in capacity. Technical screens, fees and timelines are contained in the standards for each level. PUCO revised the state's net metering standards, as prompted by EAct 2005. These revisions expanded net metering; however, a 2002 Ohio Supreme Court decision requires that NEG be credited to the customer at the utility's unbundled generation rate. In November 2008, PUCO created rules for the amended net metering law. The new rules removed the aggregate capacity limit and the limitations on eligible technologies.

## Net metering in OH

<b>Eligible Renewable/Other Technologies:</b>	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Fuel Cells, Small Hydroelectric, Microturbines
<b>Applicable Sectors:</b>	Commercial, Industrial, Residential
<b>Applicable Utilities:</b>	Investor-owned utilities, competitive retail electric service providers
<b>System Capacity Limit:</b>	No limit specified (limit based on customer's load)
<b>Aggregate Capacity Limit:</b>	No limit specified
<b>Net Excess Generation:</b>	Credited to customer's next bill at unbundled generation rate; customer may request refund of excess at end of 12-month billing period
<b>REC Ownership:</b>	Not addressed
<b>Meter Aggregation:</b>	Not addressed

## Interconnection in OH

<b>Eligible Renewable/Other Technologies:</b>	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Microturbines, Other Distributed Generation Technologies
<b>Applicable Sectors:</b>	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government
<b>Applicable Utilities:</b>	Investor-owned utilities
<b>System Capacity Limit:</b>	20 MW
<b>Standard Agreement:</b>	Yes
<b>Insurance Requirements:</b>	"Additional" liability insurance not required
<b>External Disconnect Switch:</b>	Required
<b>Net Metering Required:</b>	No

## Pennsylvania

The Pennsylvania Public Utilities Commission (PUC) issued rules in 2008 that require investor-owned utilities to offer net metering to residential customers with systems up to 50 kW and non-residential customers with systems up to 3 MW. Systems up to 5 MW are also allowed for customers who make their systems available to the grid during emergencies, or where a micro-grid is established in order to maintain critical infrastructure. RECs are retained by the customer. Pennsylvania allows meter aggregation on multiple properties owned or operated by one customer within 2 miles of each other. 85 The PUC adopted interconnection procedures that include four levels of interconnection. An external disconnect switch is required at the cost of the customer.

### Net metering in PA

<b>Eligible Renewable/Other Technologies:</b>	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Waste Coal, Coal-Mine Methane, Anaerobic Digestion, Small Hydroelectric, Other Distributed Generation Technologies
<b>Applicable Sectors:</b>	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional
<b>Applicable Utilities:</b>	Investor-owned utilities
<b>System Capacity Limit:</b>	5 MW for microgrid and emergency systems; 3 MW for non-residential; 50 kW for residential
<b>Aggregate Capacity Limit:</b>	No limit specified
<b>Net Excess Generation:</b>	Credited to customer's next bill at retail rate; reconciled at end of year at "price-to-compare"
<b>REC Ownership:</b>	Customer owns RECs
<b>Meter Aggregation:</b>	Virtual meter aggregation allowed

### Interconnection in PA

<b>Eligible Renewable/Other Technologies:</b>	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Fuel Cells, Municipal Solid Waste, CHP/Cogeneration, Waste Coal, Coal-Mine Methane, Anaerobic Digestion, Small Hydroelectric, Other Distributed Generation Technologies
<b>Applicable Sectors:</b>	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Fed. Government, Agricultural, Institutional
<b>Applicable Utilities:</b>	Investor-owned utilities
<b>System Capacity Limit:</b>	5 MW (seek utility guidance for systems above 2MW)
<b>Standard Agreement:</b>	Yes
<b>Insurance Requirements:</b>	"Additional" liability insurance not required
<b>External Disconnect Switch:</b>	Required
<b>Net Metering Required:</b>	Yes