



# Pennsylvania Interconnection Standards

## Small Generator Interconnection Standards

Combined heat and power (CHP) systems and other distributed generation may choose or need to be interconnected to the grid; they are often sized to meet only a portion of a site's electric demand, and power from the grid is needed to provide the remaining demand. The Pennsylvania Public Utility Commission's (PUC's) interconnection standards for distributed generation apply to all Pennsylvania investor-owned utilities. The standards include provisions for four levels of interconnection for distributed generation systems up to 5 megawatts (MW) in nameplate capacity, including CHP.

IEEE 1547 and UL 1741 technical standards are used in evaluating interconnection requests under all levels of review. There are technical screens and specified timelines for each level of interconnection. The standards allow a single point of interconnection for a location with multiple generators. Limited interconnection to area networks is permitted. The approved application fee schedule allows utilities to charge the customer for the cost of grid upgrades necessary to accommodate the system, as well as costs of up to \$100/hour associated with system impact, feasibility, or facility studies. Utilities are not permitted to deviate from this fee structure without PUC approval indicating that such a deviation is appropriate. Customer-generators must pay for and provide an accessible external disconnect switch. Under the standards, utilities cannot require customer-generators to carry liability insurance.

The procedure for each level is based on system size, and the technical procedures and applications fees include specific timeframes for the investor-owned utility to respond during each step of the application process. Utilities are required to designate a contact person from whom customer-generators may obtain relevant information regarding the progress of a project. Disputes may be resolved through complaint procedures available through the PUC or through an alternative process approved by the commission. The different levels of review required depend on the nameplate capacity of the generation equipment to be installed and the project's complexity.

<b>Level 1 procedure</b>	The facility has a nameplate capacity up to 10 kW.
	The interconnection equipment is inverter-based and lab-certified.
	There is a \$100 charge for Level 1 applications.
<b>Level 2 procedure</b>	The facility has a nameplate capacity rating of 2 MW or less that does not qualify for Level 1.
	The application fee is \$250 plus \$1 per kW of rated generating facility output.
<b>Level 3 procedure</b>	Level 3 applies to systems up to 5 MW in capacity that do not qualify or were not approved for Level 1 or Level 2 interconnection.
	The application fee is \$350 plus \$2 per kW of rated generating facility output.
<b>Level 4 procedure</b>	Level 4 applies to systems that do not qualify or were not approved for Level 1, Level 2, or Level 3 interconnection and that do not export power to the grid.
	The application fee is \$350 plus \$2 per kW of rated generating facility output.

## Rulemaking Process

The Alternative Energy Portfolio Standards Act of 2004 mandated that the Pennsylvania PUC adopt interconnection standards and net-metering rules. In July 2007, House Bill 1203 required that the Pennsylvania PUC develop revised technical and net-metering interconnection rules that were consistent with rules defined in other states within the territory served by the PJM Interconnection. In July 2008, the PUC issued a final rulemaking order (effective November 2008) adopting new net-metering regulations but leaving the state's interconnection standards unchanged. Separately, in February 2009, the PUC issued two additional determinations affecting interconnection. One action adopted a "Policy Statement" defining application fees for different levels of interconnection review, and the other action issued an opinion and order adopting a set of standardized interconnection applications and agreements for use by electric distribution utilities. This process resulted in the current interconnection standards for systems up to 5 MW, covering renewable net-metered and other customer-owned generation facilities.

## Summary of Policy Results and Outcomes

While the rulemaking process incorporated CHP, it did not identify interconnection issues specific to CHP. Follow-up work by various interest groups, including the Mid-Atlantic CHP TAP, resulted in the PUC's adoption on April 5, 2018, of a policy statement to advance CHP development in Pennsylvania. The public statement acknowledged that CHP offers a "variety of benefits," including environmental stewardship, economic benefits, and resilience. The unanimously adopted policy statement was intended to promote CHP investments; encourage electric distribution companies and natural gas distribution companies to make CHP an integral part of their energy efficiency and resilience plans, as well as their marketing and outreach efforts; and encourage these companies to design interconnection processes and rates for owners and operators of CHP facilities. The policy statement also resulted in the formation of a CHP Working Group, which discusses key issues such as interconnection and standby rates in Pennsylvania.



## Lessons to Share

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Pennsylvania's interconnection standards were originally written to accommodate large industrial power plants, but more recently, standards have been developed to accommodate the deployment of on-site renewable energy generation. It is within this framework that CHP interconnection standards are also now being developed. The PUC-led CHP Working Group provides an important opportunity for all stakeholders to participate in the process and maintain non-discriminatory treatment of CHP as the grid evolves to incorporate renewables and storage.

### Resources:

- Pennsylvania PUC Interconnection Application Template  
[http://www.puc.pa.gov/electric/docs/Interconnection\\_Application-PAlevel1234.doc](http://www.puc.pa.gov/electric/docs/Interconnection_Application-PAlevel1234.doc)
- Pennsylvania PUC CHP Working Group  
[http://www.puc.state.pa.us/utility\\_industry/natural\\_gas/chp\\_cogeneration.aspx](http://www.puc.state.pa.us/utility_industry/natural_gas/chp_cogeneration.aspx)
- Pennsylvania PUC CHP policy statement  
[http://www.puc.pa.gov/about\\_puc/press\\_releases.aspx?ShowPR=4009](http://www.puc.pa.gov/about_puc/press_releases.aspx?ShowPR=4009)

## For More Information

### U.S. DOE MID-ATLANTIC CHP TECHNICAL ASSISTANCE PARTNERSHIP (CHP TAP)

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More CHP Program Profiles:

[www.machptap.org](http://www.machptap.org)

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