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# **Title 20 PUBLIC SERVICE COMMISSION**

## **Subtitle 50 SERVICE SUPPLIED BY ELECTRIC COMPANIES**

### **Chapter 09 Small Generator Interconnection Standards**

**Authority: Public Utilities Article, §§2-113, 2-121, 5-101, 5-303, and 7-306, Annotated Code of Maryland**

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20.50.09.01

### **.01 Scope.**

This chapter applies to a small electricity generator facility seeking to interconnect to the electric distribution system that meets the following criteria:

- A. The nameplate capacity of the small generator facility is equal to or less than 10 MW;
- B. The small generator facility is not subject to the interconnection requirements of PJM Interconnection, LLC; and
- C. The small generator facility is designed to operate in parallel with the electric distribution system.

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## **.02 Definitions.**

A. In this chapter, the following terms have the meanings indicated.

B. Terms Defined.

(1) "Adverse system impact" means a negative effect, due to technical or operational limits on conductors or equipment being exceeded, that may compromise the safety or reliability of the electric distribution system.

(2) "Affected system" means a utility distribution system that is affected by the interconnection of a small generator to another company's distribution system without impacting a transmission system regulated by the Federal Energy Regulatory Commission.

(3) "Applicant" means a person who has submitted an interconnection request to interconnect a small generator facility to a utility's electric distribution system.

(4) "Area network" means a type of electric distribution system served by multiple transformers interconnected in an electrical network circuit, often used in large, densely populated metropolitan areas.

(5) "Certificate of completion" means a certificate on a form approved by the Commission containing information about the interconnection equipment to be used, its installation, and local inspections.

(6) "Commissioning test" means one of several tests applied to a small generator facility by the applicant after construction is completed to verify that the facility does not create adverse system impacts, including the test specified in Section 5.4 of IEEE Standard 1547.

(7) "Distribution upgrade" means a required addition or modification to the utility electric distribution system, excluding the interconnection facilities, necessary to accommodate the interconnection of a small generator facility.

(8) "Draw-out type circuit breaker" means a molded case switching device that:

(a) Can be inserted into or removed from its enclosure during no-load conditions; and

(b) Is capable of making, carrying, and breaking currents under normal and abnormal circuit conditions.

(9) Electric Distribution System.

(a) "Electric distribution system" means the facilities and equipment used to transmit electricity generally at less than 69 kV to ultimate usage points such as homes and industries from interchanges with higher voltage transmission networks that transport bulk power over longer distances.

(b) "Electric distribution system" has the same meaning as the term Area EPS as defined in Section 3.1.6.1 of IEEE Standard 1547.

(10) "Fault current" means the electrical current that flows through a circuit during an electrical fault condition, such as when one or more electrical conductors contact ground or each other.

(11) "IEEE Standard 1547" means the standard incorporated by reference in COMAR 20.50.02.02.

(12) "IEEE Standard 1547.1" means the standard incorporated by reference in COMAR 20.50.02.02.

(13) "Interconnection customer" means an entity that proposes to interconnect a small generator facility to an electric distribution system.

(14) Interconnection Equipment.

(a) "Interconnection equipment" means a group of components or an integrated system connecting an electric generator with a local electric power system, or an electric distribution system.

(b) "Interconnection equipment" means all interface equipment including switchgear, protective devices, inverters, or other interface devices.

(c) "Interconnection equipment" includes equipment installed as part of an integrated equipment package that includes a generator or other electric source.

(15) Interconnection Facilities.

(a) "Interconnection facilities" means facilities and equipment required by the utility to accommodate the interconnection of a small generator facility.

(b) "Interconnection facilities" includes all facilities and equipment between the small generator facility and the point of interconnection, and modifications, additions, or upgrades that are necessary to physically and electrically interconnect the small generator facility to the electric distribution system.

(c) "Interconnection facilities" includes any utility distribution system upgrade.

(16) "Interconnection request" means an applicant's request on a form approved by the Commission for the interconnection of a new small generator facility, or to increase the capacity or operating characteristics of an existing small generator facility that is interconnected with the utility's electric distribution system.

(17) "Interconnection study" means an interconnection feasibility study, interconnection system impact study, or interconnection facilities study as described in Regulation .12 of this chapter.

(18) "Line section" means that portion of a utility electric distribution system connected to an interconnection customer, bounded by automatic sectionalizing devices, or the end of the distribution line.

(19) Local Electric Power System.

(a) "Local electric power system" means those facilities that deliver electric power to a load that are contained entirely within a single premises or group of premises.

(b) "Local electric power system" has the same meaning as the term local electric power system as defined in Section 3.1.6.2 of IEEE Standard 1547.

(20) "Minor equipment modification" means a change to the proposed small generator facility that does not have a significant impact on safety or reliability of the electric distribution system.

(21) "Nameplate capacity" means the maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer, and is usually listed on a nameplate physically attached to the power production equipment.

(22) "Nationally recognized testing laboratory (NRTL)" means a qualified private organization recognized by the Occupational Safety and Health Administration to perform independent safety testing and product certification.

(23) "Parallel operation" means the sustained state of operation over 100 milliseconds which occurs when a small generator facility is connected electrically to the electric distribution system, and thus has the ability for electricity to flow from the small generator facility to the electric distribution system.

(24) Point of Interconnection.

(a) "Point of interconnection" means the point where the small generator facility is electrically connected to the electric distribution system.

(b) "Point of interconnection" has the same meaning as the term "point of common coupling", as defined in Section 3.1.13 of IEEE Standard 1547.

(25) "Primary line" means a distribution line rated at greater than 600 volts.

(26) "Queue position" means the order of a completed interconnection request, relative to all other pending completed interconnection requests, that is established based upon the date and time of receipt of the completed interconnection request by the utility.

(27) "Radial distribution circuit" means a circuit configuration in which independent feeders branch out radially from a common source of supply.

(28) "Scoping meeting" means a meeting between the applicant and utility conducted for the purpose of discussing alternative interconnection options, exchanging information, including any electric distribution system data and earlier study evaluations that would be reasonably expected to impact interconnection options, analyzing information, and determining the potential feasible points of interconnection.

(29) "Secondary line" means a service line subsequent to the primary line that is rated for 600 volts or less, also referred to as the customer's service line.

(30) "Shared transformer" means a transformer that supplies secondary source voltage to more than one customer.

(31) Small Generator Facility.

(a) "Small generator facility" means the equipment used to generate or store electricity that operates in parallel with the electric distribution system with a nameplate capacity equal to or less than 10 MW.

(b) "Small generator facility" includes an electric generator, a prime mover, and the interconnection equipment required to safely interconnect with the electric distribution system or local electric power system.

(32) Spot Network.

(a) "Spot network" means a type of electric distribution system that uses two or more inter-tied transformers to supply an electrical network circuit.

(b) "Spot network" is generally used to supply power to a single customer or a small group of customers.

(c) "Spot network" has the same meaning as the term is defined in 4.1.4 of IEEE Standard 1547.

(33) "Standard small generator interconnection agreement" means a set of standard forms approved by the Commission of interconnection agreements which are applicable to interconnection requests pertaining to small generating facilities.

(34) "UL Standard 1741" means the Underwriters Laboratories' standard titled "Inverters, Converters, and Controllers for Use in Independent Power Systems", November 7, 2005 edition.

(35) "Witness test" means, for lab-certified or field-approved equipment, verification either by an on-site observation or review of documents by the utility that the interconnection installation evaluation required by Section 5.3 of IEEE Standard 1547 and the commissioning test required by Section 5.4 of IEEE Standard 1547 have been adequately performed.

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### **.03 Acceptable Standards.**

A. The technical standard to be used in evaluating all interconnection requests under Level 1, Level 2, Level 3, and Level 4 reviews, unless otherwise provided for in this chapter, is IEEE Standard 1547.

B. Attachment H to the PJM Interconnection Planning Manual, available from the website [www.pjm.com](http://www.pjm.com), shall be used to detail and illustrate the interconnection protection requirements that are provided in IEEE Standard 1547.

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*20.50.09.04*

#### **.04 Interconnection Requests.**

- A. Applicants seeking to interconnect a small generator facility shall submit an interconnection request using a standard form approved by the Commission to the utility that owns the electric distribution system to which interconnection is sought.
- B. Each utility shall establish processes for accepting interconnection requests electronically on the utility's website.

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### **.05 Interconnection Request Processing Fees.**

A. A utility may only charge a small generator interconnection application fee for a Level 2, Level 3, or Level 4 interconnection.

B. The small generator facility interconnection fee under §A of this regulation may not exceed the following:

- (1) No charge for Level 1 applications;
- (2) \$50 plus \$1 per kW of rated generating facility output for Level 2 applications; and
- (3) \$100 plus \$2 per kW of rated generating facility output for Level 3 and 4 applications.

C. The utility shall specify the interconnection processing fees charged under this regulation in its tariff.

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## **.06 General Requirements.**

A. If an interconnection request for a small generator facility includes multiple energy production devices at a site for which the applicant seeks a single point of interconnection, the interconnection request shall be evaluated on the basis of the aggregate nameplate capacity of the multiple devices.

B. If an interconnection request is for an increase in capacity for an existing small generator facility, the interconnection request shall be evaluated on the basis of the new total nameplate capacity of the small generator facility.

### C. Utility Provided Information.

(1) A utility shall designate a contact person, and provide contact information on its website and for the Commission's website for submission of all interconnection requests, and from whom information on the interconnection request process and the utility's electric distribution system can be obtained.

(2) The information provided by the utility on its website shall include studies and other materials useful to an understanding of the feasibility of interconnecting a small generator facility on the utility electric distribution system, except to the extent providing the materials would violate security requirements or confidentiality agreements, or be contrary to law.

(3) In appropriate circumstances, the utility may require an applicant to execute an appropriate confidentiality agreement prior to release or access to confidential or restricted information.

D. If an interconnection request is determined to be complete, a modification, other than a minor equipment modification that is not agreed to in writing by the utility, shall require submission of a new interconnection request.

E. If an applicant is not currently a customer of the utility at the location for the proposed generation facility, upon request from the utility, the applicant shall provide proof of site control evidenced by a property tax bill, deed, lease agreement, contract, or other acceptable document.

### F. Connection of Multiple Small Generators by Single Interconnection.

(1) To minimize the cost of interconnecting multiple small generator facilities, the utility or the applicant may propose a single point of interconnection for multiple small generator facilities located at a single site.

(2) If an applicant rejects a utility proposal for a single point of interconnection, the applicant shall pay any additional cost of providing separate points of interconnection for each small generator facility.

(3) If a utility unreasonably rejects a customer proposal for a single point of interconnection without providing a written technical explanation, the utility shall pay any additional cost of providing separate points of interconnection for each small generator facility.

### G. Electrical Isolation of Generators.

(1) Small generator facilities shall be capable of being isolated from the utility distribution system.

(2) For small generator facilities interconnecting to a primary line, the isolation shall be by means of a lockable, visible-break isolation device accessible by the utility.

(3) For small generator facilities interconnecting to a secondary line, the isolation shall be by means of a lockable isolation device whose status is clearly indicated and is accessible by the utility.

(4) The isolation device shall be installed, owned, and maintained by the owner of the small generation facility, and

located electrically between the small generation facility and the point of interconnection.

(5) A draw-out type circuit breaker with a provision for padlocking at the draw-out position satisfies the requirement for an isolation device.

#### H. Use of Lockbox for Access to Isolation Device.

(1) An interconnection customer may elect to provide the utility access to an isolation device that is contained in a building or area that may be unoccupied and locked or not otherwise readily accessible to the utility, by installing a lockbox provided by the utility that shall allow ready access to the isolation device.

(2) The lockbox shall be in a location that is readily accessible by the utility, and the interconnection customer shall permit the utility to affix a placard in a location of its choosing that provides clear instructions to utility operating personnel on access to the isolation device.

(3) In the event the interconnection customer fails to comply with the terms of this section and the utility needs to gain access to the isolation device, the utility may not be held liable for any damages resulting from any necessary utility action to isolate the small generator.

#### I. Metering.

(1) Any metering necessitated by a small generator interconnection shall be installed, operated, and maintained in accordance with the applicable utility tariff.

(2) Any small generator metering requirements shall be clearly identified as part of the standard small generator interconnection agreement executed by the interconnection customer and the utility.

#### J. Utility Monitoring and Control of Small Generator.

(1) Utility monitoring and control of a small generator facility shall be permitted only if the nameplate rating is greater than 2 MW.

(2) Any monitoring and control requirements shall be:

(a) Consistent with the utility published requirements; and

(b) Clearly identified as part of an interconnection agreement executed by the interconnection customer and the utility.

#### K. Witness Test of Small Generator.

(1) The utility shall have the option of performing a witness test after construction of the small generator facility is completed.

(2) The applicant shall provide the utility at least 5 business days notice of the planned commissioning test for the small generator facility.

(3) If the utility elects to perform a witness test, the utility shall contact the applicant to schedule the witness test at a mutually agreeable time within 10 business days of the scheduled commissioning test.

(4) If the utility does not perform the witness test within 10 business days of the commissioning test, the witness test is considered waived unless the utility and applicant agree to extend the time for conducting the witness test.

(5) If the results of the witness test are not acceptable to the utility, the applicant shall address and resolve any deficiencies within 30 business days, which may be extended upon the request of the applicant prior to the expiration of the 30 business day period. A request for extension may not be unreasonably denied by the utility.

(6) If the applicant fails to address and resolve the deficiencies to the satisfaction of the utility, the interconnection request shall be considered withdrawn.

(7) If a witness test is not performed by the utility or an entity approved by the utility, the applicant shall satisfy the interconnection test specifications and requirements set forth in Section 5 of IEEE Standard 1547.

(8) For interconnection equipment that has not been lab-certified or field-approved under Regulation. 07 of this chapter, the witness test shall also include the verification by the utility of the on-site design tests as required by Section 5.1 of IEEE Standard 1547 and of production tests required by Section 5.2 of IEEE Standard 1547.

(9) All tests verified by the utility shall be performed in accordance with the test procedures specified in IEEE Standard 1547.1.

(10) The applicant shall, if requested by the utility, provide a copy of all documentation in its possession regarding testing conducted under IEEE Standard 1547.1.

#### L. Interconnection Studies and Applicant Information.

(1) If requested by the applicant, the utility shall provide the applicant copies of any interconnection studies performed in analyzing an interconnection request.

(2) An applicant may provide any other prospective applicant copies of interconnection studies to aid in streamlining a future utility review.

(3) A utility has no obligation to provide any prospective applicant any information regarding prior interconnection requests, including a prior applicant's name, copies of prior interconnection studies performed by the utility, or any other information regarding a prior applicant or request.

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## **.07 Lab-Certified and Field-Approved Equipment.**

A. An interconnection request may be eligible for expedited interconnection review if the small generator facility uses lab-certified or field-approved interconnection equipment.

B. Interconnection equipment shall be considered to be lab-certified upon establishment of the following:

(1) The interconnection equipment has been tested in accordance IEEE Standard 1547.1 in compliance with the appropriate codes and standards referenced in §B(7) of this regulation by any NRTL recognized by the United States Occupational Safety and Health Administration to test and certify interconnection equipment under the relevant codes and standards listed in §B(7) of this regulation;

(2) The interconnection equipment has been labeled and is publicly listed by the NRTL at the time of the interconnection application;

(3) The NRTL testing the interconnection equipment makes readily available, such as by posting on its website, copies of all test standards and procedures utilized in performing equipment certification, and, with applicant approval, the test data itself;

(4) The applicant verifies that the intended use of the interconnection equipment falls within the use or uses for which the interconnection equipment was labeled, and listed by the NRTL;

(5) If the interconnection equipment is an integrated equipment package such as an inverter, the applicant shows that the generator or other electric source being utilized is compatible with the interconnection equipment and is consistent with the testing and listing specified for this type of interconnection equipment;

(6) If the interconnection equipment includes only interface components such as switchgear, multifunction relays, or other interface devices, the applicant shows that the generator or other electric source being utilized is compatible with the interconnection equipment and is consistent with the testing and listing specified for this type of interconnection equipment; and

(7) The interconnection equipment is:

(a) Evaluated by a NRTL in accordance with the following codes and standards:

(i) IEEE Standard 1547, including use of IEEE Standard 1547.1 testing protocols to establish conformity, which are incorporated by reference in COMAR 20.50.02.02; and

(ii) National Electrical Code, which is incorporated by reference in COMAR 20.50.02.02; and

(b) Certified by Underwriters Laboratories under UL Standard 1741.

C. Interconnection equipment manufactured prior to January 1, 2007, does not require testing and listing based on IEEE Standard 1547.1.

D. Interconnection equipment shall be considered to be field approved if within the previous 36 months of the date of the interconnection request, it has been previously approved for use with the proposed small generator facility and the following criteria are met:

(1) The utility has previously approved interconnection equipment identical to that being proposed under the Level 4 study review process described in Regulation .12 of this chapter in a materially identical system application, or the utility has agreed to accept a Level 4 study review conducted for identical interconnection equipment and system application by another

utility;

(2) The prior approval process included a successful witness test; and

(3) The applicant provided as part of its interconnection request the following:

(a) A copy of the final certificate of completion from the prior approval process;

(b) A written statement that the proposed interconnection equipment is identical to what was previously approved; and

(c) Documentation or drawings indicating the system interconnection details.

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## **.08 Determination of Level of Utility Review of Interconnection Request.**

A. A utility shall determine on an expedited basis the level of review required for an interconnection request.

B. A utility shall use a Level 1 procedure to evaluate an interconnection request to connect an inverter-based small generation facility when:

- (1) The small generator facility has a nameplate capacity of 10 kW or less; and
- (2) The customer interconnection equipment is lab-certified.

C. A utility shall use a Level 2 procedure to evaluate an interconnection request when:

(1) The following criteria are met:

- (a) The small generation facility has a nameplate capacity rating of 2 MW or less;
- (b) The interconnection equipment is lab-certified or field-approved; and
- (c) The proposed interconnection is to a radial distribution circuit, or a spot network limited to serving one customer;

or

(2) Alternatively, the small generator facility was reviewed under Level 1 review procedures but not approved, and the applicant has submitted a new interconnection request for consideration.

D. A utility shall use a Level 3 review procedure to evaluate an interconnection request to area networks and radial distribution circuits when electric power is not exported to the electric distribution system based on the following criteria:

(1) For interconnection requests to the load side of an area network:

- (a) The nameplate capacity of the small generator facility is less than or equal to 50 kW;
- (b) The proposed small generator facility utilizes a lab-certified inverter-based equipment package;
- (c) The small generator facility utilizes reverse power relays, other protection functions, or both, that prevent the export of power into the area network;
- (d) The aggregate of all generation on the area network does not exceed the smaller of 5 percent of an area network's maximum load or 50 kW; and
- (e) Construction of facilities by the electric distribution company is not required to accommodate the small generator facility; or

(2) For interconnection requests to a radial distribution circuit:

- (a) The small generator facility has a nameplate capacity of 10 MW or less;
- (b) The aggregated total of the nameplate capacity of all of the generators on the circuit, including the proposed small generator facility, is 10 MW or less;
- (c) The small generator will use reverse power relays or other protection functions that prevent power flow onto the

electric distribution system;

(d) The small generator is not served by a shared transformer; and

(e) Construction of facilities by the utility on its own electric distribution system is not required to accommodate the small generator facility.

E. A utility shall use the Level 4 study review procedures for evaluating interconnection requests if:

(1) The nameplate capacity of the small generation facility is 10 MW or less;

(2) The interconnection request cannot be approved under a Level 1, Level 2, or Level 3 review, and the applicant has submitted an interconnection request for consideration under a Level 4 study review; and

(3) The interconnection request does not meet the criteria for qualifying for a review under Level 1, Level 2, or Level 3 review procedures.

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### **.09 Level 1 Review.**

A. The utility shall evaluate a Level 1 small generating facility for the potential for adverse system impacts using the following:

(1) For interconnection of a proposed small generator facility:

(a) To a radial distribution circuit, the aggregated generation on the circuit, including the proposed small generator facility, may not exceed 15 percent of the line section annual peak load as most recently measured at the substation or calculated for the line section; or

(b) To a spot network:

(i) On the load side of spot network protectors, the proposed small generator facility shall utilize an inverter-based equipment package;

(ii) The interconnection equipment proposed for the small generator facility is lab-certified; and

(iii) The aggregation of all interconnected electric generators may not exceed 5 percent of the spot network's maximum load if the spot network serves more than one customer;

(2) When a proposed small generator facility is to be interconnected on a single-phase shared secondary line, the aggregate generation capacity on the shared secondary line, including the proposed small generator facility, may not exceed 20 kW;

(3) When a proposed small generator facility is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, its addition may not create an imbalance between the two sides of the 240 volt service of more than 20 percent of the nameplate rating of the service transformer; and

(4) Modification or construction of additional facilities by the utility on its distribution system, except for metering, is not required to accommodate the small generator facility.

B. The utility in conducting a Level 1 interconnection review shall:

(1) Within 5 business days after receipt of the interconnection request, inform the applicant that the interconnection request is:

(a) Complete; or

(b) Incomplete and what materials are missing; and

(2) Within 15 business days after the utility notifies the applicant that the application is complete in §B(1) of this regulation, verify that the small generator facility equipment can be interconnected safely and reliably under §A of this regulation.

C. Unless the utility determines and demonstrates that a small generator facility cannot be interconnected safely or reliably to its electric distribution system, the utility shall approve the interconnection request subject to the following conditions:

(1) The small generator facility has been approved by local or municipal electric code officials with jurisdiction over the interconnection;

- (2) A certificate of completion has been returned to the utility;
- (3) The witness test has been successfully completed or waived by the utility; and
- (4) The applicant has signed a standard small generator interconnection agreement.

D. If an applicant does not sign the standard small generator interconnection agreement within 30 business days after receipt from the utility, the interconnection request is considered withdrawn unless the applicant requests to have the deadline extended. A request for extension may not be unreasonably denied by the utility.

E. Level 1 Review Failure.

(1) If the small generator facility is not approved under a Level 1 review, the utility shall provide the applicant a letter explaining its reasons for denying the interconnection request.

(2) When a small generator facility is not approved under a Level 1 review, the applicant may submit a new interconnection request for consideration under Level 2, Level 3, or Level 4 procedures.

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## **.10 Level 2 Review.**

A. The utility shall evaluate a Level 2 small generator facility for the potential for adverse system impacts using the following:

(1) For interconnection of a proposed small generator facility:

(a) To a radial distribution circuit, the aggregated generation on the circuit, including the proposed small generator facility, may not exceed 15 percent of the line section annual peak load most recently measured at the substation or calculated for the line section; or

(b) To a spot network:

(i) When the interconnection of a proposed small generator facility is to the load side of spot network protectors, the proposed small generator facility shall utilize an inverter-based equipment package;

(ii) The applicant's interconnection equipment proposed for the small generator facility shall be lab-certified or field-approved; and

(iii) A small generating facility, when aggregated with other generation on the spot network, may not exceed 5 percent of a spot network's maximum load if the spot network serves more than one customer;

(2) For fault current limitations:

(a) The proposed small generator facility, in aggregation with other generation on the distribution circuit, may not contribute more than 10 percent to the electric distribution circuit's maximum fault current at the point on the primary line nearest the point of interconnection;

(b) The proposed small generator facility, in aggregate with other generation on the distribution circuit, may not cause any distribution protective devices and equipment including substation breakers, fuse cutouts, and line reclosers, or other customer equipment on the electric distribution system to be exposed to fault currents exceeding 90 percent of the short circuit interrupting capability; and

(c) The interconnection request may not request interconnection on a circuit that already exceeds 90 percent of the short circuit interrupting capability;

(3) The proposed small generator facility's point of interconnection may not be on a transmission line;

(4) When a customer-generator facility is to be connected to 3-phase, 3-wire primary utility distribution lines, a 3-phase or single-phase generator shall be connected phase-to-phase;

(5) When a customer-generator facility is to be connected to 3-phase, 4-wire primary utility distribution lines, a 3-phase or single-phase generator will be connected line-to-neutral and will be effectively grounded;

(6) When the proposed small generator facility is to be interconnected on single-phase shared secondary line, the aggregate generation capacity on the shared secondary line, including the proposed small generator facility, may not exceed 20 kW;

(7) When a proposed small generator facility is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, its addition may not create an imbalance between the two sides of the 240 volt service of more than 20 percent of the nameplate rating of the service transformer;

(8) A small generator facility, in aggregate with other generation interconnected to the distribution side of a substation transformer feeding the circuit where the small generator facility proposes to interconnect, may not exceed 10 MW in an area where there are known or posted transient stability limitations to generating units located in the general electrical vicinity; and

(9) Except as permitted by an additional review in §G of this regulation, no modification or construction of additional facilities by a utility of its distribution system, with the exception of metering, shall be required to accommodate the small generator facility.

B. A utility shall, within 5 business days after receipt of the interconnection request, inform the applicant that the interconnection request is:

- (1) Complete; or
- (2) Incomplete and what materials are missing;

C. Queue Position.

(1) When an interconnection request is complete, the utility shall assign a queue position if there is more than one interconnection request pending for the same line section.

(2) The queue position of the interconnection request shall be used to determine the potential adverse system impact of the small generator facility based on the relevant screening criteria.

(3) The utility shall notify the applicant of any other higher queue position applicants on the same line section or spot network for which interconnection is sought.

(4) Queue position may not be forfeited or otherwise impacted by the submission of a dispute under the provisions of Regulation .13 of this chapter.

D. When a utility determines additional information is required to complete an evaluation:

- (1) The utility shall request the information;
- (2) The time necessary to complete the evaluation may be extended, but only to the extent of the delay required for receipt of the additional information; and
- (3) When additional information is required, the utility may not revert to the start of the review process or alter the applicant's queue position.

E. Within 20 business days after the utility notifies the applicant it has received a completed interconnection request, the utility shall:

- (1) Evaluate the interconnection request using the Level 2 screening criteria;
- (2) Review the applicant's analysis, if provided by applicant, using the same criteria;
- (3) Provide the applicant with the utility's evaluation, including a comparison of the results of its own analyses with those of applicant, if applicable; and
- (4) When a utility does not have a record of receipt of the interconnection request and the applicant can demonstrate that the original interconnection request was delivered, expedite its review to complete the evaluation of the interconnection request within 20 business days.

F. The utility is not obligated to comply with the 20 business day limit of §E of this regulation for reviewing the interconnection request until the utility has completed the review of all other interconnection requests that have a higher

queue position.

#### G. Failure to Meet Level 2 Criteria.

(1) Additional review may be appropriate when a small generator facility has failed to meet one or more of the Level 2 criteria of §A of this regulation.

(2) A utility shall:

(a) Offer to perform additional review to determine whether minor modifications to the electric distribution system would enable the interconnection to be made consistent with safety, reliability and power quality criteria; and

(b) Provide the applicant with a nonbinding, good faith estimate of the costs of additional review and minor modifications.

(3) The utility shall undertake the additional review only if the applicant agrees within 10 business days to pay for the cost of the review, which may be extended at the request of the applicant. A request for extension may not be unreasonably denied by the utility.

(4) If the review identifies the need for modifications to the distribution system, the utility shall make the necessary modifications only if the interconnection customer agrees to pay for the cost of the modifications.

#### H. Interconnection Agreement.

(1) When a utility determines that the interconnection request passes the Level 2 screening criteria, or fails one or more of the Level 2 screening criteria but determines that the small generator facility can be interconnected safely and reliably, the utility shall provide the applicant a standard small generator interconnection agreement within 5 business days after the determination.

(2) The applicant shall have either 30 calendar days, or another mutually agreeable time frame after receipt of the standard small generator interconnection agreement, to sign and return the standard small generator interconnection agreement.

(3) If the applicant does not sign the standard small generator interconnection agreement within 30 calendar days, the request shall be considered withdrawn unless the applicant and utility mutually agree to extend the time period for executing the standard small generator interconnection agreement prior to the expiration of the 30 business day period. A request for extension may not be unreasonably denied by the utility.

(4) After the standard small generator interconnection agreement is signed by the applicant and utility, interconnection of the small generator facility shall proceed according to any milestones agreed to by the applicant and utility in the standard small generator interconnection agreement.

(5) The interconnection agreement is not final until:

(a) All milestones agreed to in the standard small generator interconnection agreement are satisfied;

(b) The small generator facility is approved by electric code officials with jurisdiction over the interconnection;

(c) The applicant provides a certificate of completion to the utility; and

(d) There is a successful completion of the witness test, if conducted by the utility.

#### I. Level 2 Review Failure.

(1) If the small generator facility is not approved under a Level 2 review, the utility shall provide the applicant a letter explaining its reasons for denying the interconnection request.

(2) The applicant may submit a new interconnection request for consideration under a Level 3 or Level 4 interconnection review; however, the queue position assigned to the Level 2 interconnection request shall be retained provided the request is made within 15 business days of notification that the current Level 2 interconnection request is denied.

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20.50.09.11

### **.11 Level 3 Review.**

A. The utility shall use the Level 3 review procedure for an interconnection request that meets the Level 3 criteria in Regulation .08 of this chapter.

B. Queue Position.

(1) Once the interconnection request is considered complete by the utility, the utility shall assign a queue position based upon the date and time the interconnection request is determined to be complete if there is more than one interconnection request pending for the same line section.

(2) The queue position of each interconnection request shall be used to determine the potential adverse system impact of the small generator facility based on the relevant screening criteria.

(3) The utility shall notify the applicant of any other higher queue position applicants on the same radial line or area network that the applicant is seeking to interconnect to.

(4) Queue position may not be forfeited or otherwise impacted by any pending dispute submitted under the provisions of Regulation .13 of this chapter.

C. Interconnection requests meeting the requirements set forth in Regulation .08 of this chapter for nonexporting small generator facilities interconnecting to an area network shall be presumed by the utility to be appropriate for interconnection. The utility shall process the interconnection request to area networks using the following procedures:

(1) The utility shall evaluate the interconnection request under Level 2 interconnection review procedures as set forth in Regulation .10 of this chapter, except that the utility shall have 25 business days to conduct an area network impact study to determine any potential adverse system impact of interconnecting to the utility's area network; however, the utility is not obligated to meet the 25 business day limit for reviewing the interconnection request until the utility has completed the review of all other interconnection requests that have a higher queue position;

(2) If the area network impact study identifies potential adverse system impacts, the utility may determine at its sole discretion that it is inappropriate for the small generator facility to interconnect to the area network, in which case the interconnection request shall be denied; however, the applicant may elect to submit a new interconnection request for consideration under Level 4 procedures, in which case the queue position assigned to the Level 3 interconnection request will be retained provided the request is made within 15 business days of notification that the current application is denied;

(3) The utility shall conduct the area network impact study at its own expense; and

(4) In the event the utility denies the interconnection request, the utility shall provide the applicant with a copy of its area network impact study and written justification for denying the interconnection request.

D. When an interconnection request meets the requirements of Regulation .08 of this chapter for nonexporting small generator facilities interconnecting to a radial distribution circuit, the utility shall:

(1) Evaluate the interconnection request using the Level 2 review in Regulation .10 of this chapter; and

(2) Approve the interconnection request if all of the applicable Level 2 screens are satisfied, except that the peak line section value indicated in Regulation .10A(1(a)) shall be 25 percent instead of 15 percent.

E. Interconnection Agreement.

(1) If a small generator facility satisfies the criteria in §C or D of this regulation, the utility shall approve the

interconnection request and provide a standard interconnection agreement for the applicant to sign.

(2) The applicant shall have 30 calendar days, or other mutually agreeable time frame after receipt of the standard small generator interconnection agreement, to sign and return the standard small generator interconnection agreement.

(3) If the applicant does not sign the standard small generator interconnection agreement within 30 calendar days, the interconnection request shall be considered withdrawn unless the applicant and utility mutually agree to extend the time period for executing the standard small generator interconnection agreement prior to the expiration of the 30 business day period. A request for extension may not be unreasonably denied by the utility.

(4) After the standard small generator interconnection agreement is signed by the applicant and utility, interconnection of the small generator facility shall proceed according to any milestones agreed to by the applicant and utility in the standard small generator interconnection agreement.

(5) The interconnection agreement is not final until:

- (a) All milestones agreed to in the standard small generator interconnection agreement are satisfied;
- (b) The small generator facility is approved by electric code officials with jurisdiction over the interconnection;
- (c) The applicant provides a certificate of completion to the utility; and
- (d) There is a successful completion of the witness test, if conducted by the utility.

#### F. Level 3 Review Failure.

(1) If the small generator facility is not approved under a Level 3 review, the utility shall provide the applicant a letter explaining its reasons for denying the interconnection request.

(2) If the small generator facility is not approved under a Level 3 review, the applicant may submit a new interconnection request for consideration under the Level 4 procedures; however, the queue position assigned to the Level 3 interconnection request shall be retained provided the request is submitted within 15 business days of the notice that the current Level 3 request was not approved.

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20.50.09.12

## **.12 Level 4 Study Review.**

A. A utility shall use the Level 4 study review procedure for an interconnection request that meets the Level 4 criteria in Regulation .08 of this chapter.

### B. Interconnection Request.

(1) Within 5 business days from receipt of an interconnection request, the utility shall notify the applicant whether the request is

(a) Complete; or

(b) Incomplete.

(2) If the interconnection request is not complete:

(a) The utility shall provide the applicant a written list detailing information that shall be provided to complete the interconnection request;

(b) The applicant shall have 10 business days, which may be extended at the request of the applicant and not unreasonably denied by the utility, to provide appropriate data in order to complete the interconnection request, or the interconnection request shall be considered withdrawn; and

(c) The interconnection request shall be considered complete:

(i) If the required information has been provided by the applicant; or

(ii) The utility and applicant have agreed that the applicant may provide additional information at a later time.

### C. Queue Position.

(1) When an interconnection request is complete, the utility shall assign a queue position if there is more than one interconnection request pending for the same line section.

(2) The utility shall use the queue position of an interconnection request to determine the cost responsibility necessary for the facilities to accommodate the interconnection.

(3) The utility shall notify the applicant of other higher-queued applicants on the same line section of the new interconnection request.

(4) Any required interconnection studies may not begin until the utility has completed its review of all other interconnection requests that have a higher queue position.

(5) Queue position is not forfeited or otherwise impacted by any pending dispute submitted under the provisions of Regulation .13 of this chapter.

### D. Scoping Meeting.

(1) By mutual agreement of the utility and applicant, the scoping meeting, interconnection feasibility study, interconnection impact study, or interconnection facilities studies provided for in a Level 4 review and discussed in this section may be waived.

(2) If agreed to by the utility and applicant, a scoping meeting shall be held within 10 business days, or other mutually agreed to time, after the utility has notified the applicant that the interconnection request is considered complete, or the applicant has requested that its interconnection request proceed after failing the requirements of a Level 2 review or Level 3 review.

(3) The purpose of the meeting is to review the interconnection request, existing studies relevant to the interconnection request, and the results of the Level 1, Level 2, or Level 3 screening criteria.

(4) If the utility and applicant agree at a scoping meeting that an interconnection feasibility study shall be performed, the utility shall provide to the applicant, not later than 5 business days after the scoping meeting:

- (a) An interconnection feasibility study agreement;
- (b) An outline of the scope of the study; and
- (c) A nonbinding, good faith estimate of the cost to perform the study.

(5) If the applicant and utility agree at a scoping meeting that an interconnection feasibility study is not required, the utility shall provide to the applicant, not later than 5 business days after the scoping meeting:

- (a) An interconnection system impact study agreement;
- (b) An outline of the scope of the study; and
- (c) A nonbinding, good faith estimate of the cost to perform the study.

(6) If the utility and applicant agree at the scoping meeting that an interconnection feasibility study and system impact study are not required, the utility shall provide to the applicant, not later than 5 business days after the scoping meeting:

- (a) An interconnection facilities study agreement;
- (b) An outline of the scope of the study; and
- (c) A nonbinding, good faith estimate of the cost to perform the study.

#### E. Interconnection Feasibility, Impact, and Facilities Studies.

##### (1) Interconnection Feasibility Study.

(a) An interconnection feasibility study shall include any necessary analyses for the purpose of identifying a potential adverse system impact to the utility's electric distribution system that would result from the interconnection from among the following:

(i) Initial identification of any circuit breaker short circuit capability limits exceeded as a result of the interconnection;

(ii) Initial identification of any thermal overload or voltage limit violations resulting from the interconnection;

(iii) Initial review of grounding requirements and system protection; and

(iv) Description and nonbinding estimated cost of facilities required to interconnect the small generator facility to the utility's electric distribution system in a safe and reliable manner.

(b) If an applicant requests that the interconnection feasibility study evaluate multiple potential points of interconnection, additional evaluations may be required. Additional evaluations shall be conducted at the expense of the applicant.

(c) An interconnection system impact study is not required if the interconnection feasibility study concludes there is no adverse system impact, or if the study identifies an adverse system impact and the utility is able to identify a remedy without the need for an interconnection system impact study.

(d) The utility and applicant shall use an interconnection feasibility study agreement form approved by the Commission.

(e) The utility shall avoid duplicating previously conducted interconnection studies to the extent possible.

(2) Interconnection Impact Study.

(a) A distribution interconnection system impact study shall be performed when a potential distribution system adverse system impact is identified in the interconnection feasibility study.

(b) Scope of Interconnection System Impact Study.

(i) An interconnection system impact study shall evaluate the impact of the proposed interconnection on both the safety and reliability of the utility's electric distribution system.

(ii) The interconnection system impact study shall identify and detail the system impacts that result when a small generator facility is interconnected without project or system modifications, focusing on the adverse system impacts identified in the interconnection feasibility study, or potential impacts including those identified in the scoping meeting.

(iii) The interconnection system impact study shall consider all generating facilities that, on the date the interconnection system impact study is commenced, are directly interconnected with the utility's system, have a pending higher queue position to interconnect to the system, or have signed a standard small generator interconnection agreement.

(iv) As part of its impact study, the utility shall agree to evaluate and consider any separate studies prepared by the applicant that evaluate alternatives for interconnecting the small generator facility, including the applicant's assessment of potential impacts of the small generator facility on the electric distribution system.

(v) The utility shall provide the applicant with the utility's final impact study evaluation, including a comparison of the results of its own analyses with those provided by the applicant.

(c) Within 5 business days of transmittal of the interconnection feasibility study report, the utility shall send the applicant:

- (i) An interconnection system impact study agreement using a form approved by the Commission;
- (ii) An outline of the scope of the interconnection system impact study; and
- (iii) A good faith estimate of the cost to perform the study.

(d) The impact study shall include any necessary elements from among the following:

- (i) A load flow study;
- (ii) Identification of affected systems;
- (iii) An analysis of equipment interrupting ratings;
- (iv) A protection coordination study;
- (v) Voltage drop and flicker studies;
- (vi) Protection and set point coordination studies;

- (vii) Grounding reviews; and
- (viii) Impact on system operation.

(e) An interconnection system impact study shall consider any necessary criteria from among the following:

- (i) A short circuit analysis;
- (ii) A stability analysis;
- (iii) Alternatives for mitigating adverse system impacts on affected systems;
- (iv) Voltage drop and flicker studies;
- (v) Protection and set point coordination studies; and
- (vi) Grounding reviews.

(f) The final interconnection system impact study shall provide the following:

- (i) The underlying assumptions of the study;
- (ii) The results of the analyses;
- (iii) A list of any potential impediments to providing the requested interconnection service;
- (iv) Required distribution upgrades; and
- (v) A nonbinding good faith estimate of cost and time to construct any required distribution upgrades.

(3) Interconnection Facilities Study.

(a) Within 5 business days of completion of the interconnection system impact study, the utility shall provide to the applicant:

- (i) A report of the impact study;
- (ii) An interconnection facilities study agreement using a form approved by the Commission;
- (iii) An outline of the scope of the interconnection facilities study; and
- (iv) A nonbinding good faith estimate of the cost to perform the facilities study.

(b) The interconnection facilities study shall identify:

(i) The electrical switching configuration of the equipment, including transformer, switchgear, meters, and other station equipment;

(ii) The nature and estimated cost of the utility's interconnection facilities and distribution upgrades necessary to accomplish the interconnection, including engineering, procurement, construction, and overhead; and

(iii) An estimate of the time required to complete the construction and installation of the facilities.

(c) Third-Party Design or Construction of Interconnection Facilities.

(i) The applicant and utility may agree to permit an applicant to separately arrange for a third party to design and construct the required interconnection facilities.

(ii) The utility may review and approve the design of the facilities under the interconnection facilities study agreement.

(iii) If the applicant and utility agree to separately arrange for design and construction, the utility, consistent with security and confidentiality requirements, shall make all relevant information and required specifications available to the applicant to permit the applicant to obtain an independent design and cost estimate for the interconnection facilities.

(iv) The interconnection facilities shall be built in accordance with the specifications.

(d) Upon completion of the interconnection facilities study, and with the agreement of the applicant to pay for the interconnection facilities and distribution upgrades identified in the interconnection facilities study, the utility shall provide the applicant with a standard small generator interconnection agreement within 5 business days.

(e) Delay in Electric Distribution System Upgrades.

(i) In the event that electric distribution system upgrades are identified in the impact study that will be required to be added only in the event that higher queue position customers not yet interconnected eventually will complete and interconnect their generation facilities, an applicant may elect to interconnect without paying for such upgrades at the time of the interconnection under the condition that the customer shall pay for such upgrades at the time the higher queue position customer is ready to interconnect.

(ii) If the applicant does not pay for the cost of the electric distribution system upgrades at that time, the utility shall require the customer to immediately disconnect its generating facility so that interconnection of the higher-queued customer can be accommodated.

#### F. Interconnection Agreement.

(1) When a utility determines, as a result of the interconnection studies conducted under a Level 4 review, that it is appropriate to interconnect the small generator facility, the utility shall provide the applicant with a standard small generator interconnection agreement.

(2) The applicant shall have either 30 calendar days, or another mutually agreeable time frame after receipt of the standard small generator interconnection agreement, to sign and return the standard small generator interconnection agreement.

(3) If the applicant does not sign the standard small generator interconnection agreement within 30 calendar days, the request shall be considered withdrawn unless the applicant and utility mutually agree to extend the time period for executing the standard small generator interconnection agreement prior to the expiration of the 30 business day period. A request for extension may not be unreasonably denied by the utility.

(4) After the standard small generator interconnection agreement is signed by the applicant and utility, interconnection of the small generator facility shall proceed according to any milestones agreed to by the applicant and utility in the standard small generator interconnection agreement.

(5) The interconnection agreement is not final until:

(a) All milestones agreed to in the standard small generator interconnection agreement are satisfied;

(b) The small generator facility is approved by electric code officials with jurisdiction over the interconnection;

(c) The applicant provides a certificate of completion to the utility; and

(d) There is a successful completion of the witness test, if conducted by the utility.

G. Level 4 Review Failure. If the interconnection request is denied, the utility shall provide the applicant a letter explaining the reasons for denying the interconnection request.

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20.50.09.13

### **.13 Dispute Resolution.**

A. The applicant and utility shall attempt to resolve all disputes regarding interconnection as provided in this regulation promptly, equitably, and in a good faith manner.

B. Dispute Resolution Before the Commission.

(1) If a dispute arises, the applicant or utility may seek immediate resolution through the procedures of COMAR 20.32.01, or an alternative dispute resolution process approved by the Commission, by providing written notice to the Commission and the other party stating the issues in dispute.

(2) Dispute resolution shall be conducted in an informal, expeditious manner to reach resolution with minimal costs and delay.

(3) If available, dispute resolution may be conducted by phone.

C. Dispute Resolution by Technical Master.

(1) If disputes relate to the technical matters regarding the interconnection process, upon the request of the applicant and utility and at their cost, the Commission may designate a technical master to resolve the dispute.

(2) The Commission may designate a Department of Energy National Laboratory, PJM Interconnection, LLC, or a college or university with electric distribution system engineering expertise as the technical master.

(3) Upon Commission designation, the applicant and utility shall use the technical master to resolve disputes related to interconnection.

(4) Responsibility for the costs for a dispute resolution conducted by the technical master shall be determined either prior to submission of the dispute to the technical master by the applicant and utility, or by the technical master after the resolution of the dispute.

D. Pursuit of dispute resolution may not affect an applicant with regard to consideration of an interconnection request or an applicant's queue position.

E. Any deadline imposed by the regulations in this chapter, which is directly affected by any issue in dispute, shall be suspended until resolution of the dispute.

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20.50.09.14

## **.14 Record Retention and Reporting Requirements.**

A. A utility shall retain records of the following for a minimum of 3 years:

(1) The total number of and the nameplate capacity of the interconnection requests received, approved, and denied under Level 1, Level 2, Level 3, and Level 4 reviews;

(2) The fuel type, total number, and nameplate capacity of small generator facilities approved in each of the following categories:

- (a) Net metering;
- (b) Emergency standby capable of operating in parallel;
- (c) Behind the meter load offset;
- (d) Combined heat and power; and
- (e) Other;

(3) The number of interconnection requests that were not processed within the deadlines established for Level 1, Level 2, Level 3, and Level 4 reviews in this chapter;

(4) The number of scoping meetings held, the number of feasibility studies, impact studies, and facility studies performed, and the fees charged for these studies;

(5) The justifications for the actions taken to deny interconnection requests; and

(6) Any special operating requirements required in interconnection agreements, which are permitted only for generating facilities with a capacity greater than 2 MW, that are not part of the utility's operating procedures applicable to small generator facilities.

B. A utility shall retain records of interconnection studies it performs to determine the feasibility, system impacts, and facilities required by the interconnection of any small generator facility for a minimum of 7 years.

C. A utility shall file not later than April 1 of each year a report entitled "Annual Small Generator Interconnection Report" to the Commission containing the following information for the preceding calendar year:

(1) The total number of and the nameplate capacity of the interconnection requests received, approved, and denied under Level 1, Level 2, Level 3, and Level 4 reviews;

(2) The fuel type, total number, and total nameplate capacity of small generator facilities approved in each of the following categories:

- (a) Net metering;
- (b) Emergency standby capable of operating in parallel;
- (c) Behind the meter load offset;
- (d) Combined heat and power; and

(e) Other;

(3) The number of interconnection requests that were not processed within the deadlines established for Level 1, Level 2, Level 3, and Level 4 reviews in this chapter; and

(4) The number of interconnection requests denied and the applicant, the address of the proposed small generator, and the reason for each denial.

D. The utility shall file a notice with the Commission describing any interconnection equipment the utility has considered field-approved for its distribution system within 90 days after granting approval for the interconnection of a small generator facility using the field-approved interconnection equipment.

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### **Administrative History**

**Effective date: June 9, 2008 (35:8 Md. R. 808)**