

NEW JERSEY BOARD OF PUBLIC UTILITIES

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Net Metering and Interconnection Standards for Class I Renewable Energy Systems

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SUBCHAPTER 9 NET METERING AND INTERCONNECTION STANDARDS FOR CLASS I RENEWABLE ENERGY SYSTEMS

14:4-9.1 Scope

(a) This subchapter sets forth net metering requirements that apply to electric power suppliers, basic generation service providers and electric distribution companies, as defined at N.J.A.C. 14:4-9.2, which have residential or small commercial customers who generate electricity using class I renewable energy.

(b) This subchapter also sets forth requirements for the interconnection of customer-generator facilities , including those that generate class I renewable energy , with electric distribution systems, as those terms are defined at N.J.A.C. 14:4-9.2.

14:4-9.2 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings, unless the context clearly indicates otherwise.

"Annualized period" means a period of 12 consecutive monthly billing periods. A customer-generator's first annualized period begins on the first day of the first full monthly billing period after which the customer-generator's facility is interconnected and is generating electricity.

“Applicant” means a person who has filed an application to interconnect a customer-generator facility to an electric distribution system.

“Area network” means a type of electric distribution system served by multiple transformers interconnected in an electrical network circuit, which is generally used in large metropolitan areas that are densely populated, in order to provide high reliability of service. This term has the same meaning as the term “secondary grid network” as defined in IEEE standard 1547 Section 4.1.4 (published July 2003), as amended and supplemented, which is incorporated herein by reference. IEEE standard 1547 can be obtained through the IEEE website at www.ieee.org.

"Avoided cost of wholesale power" means the average locational marginal price of energy in the applicable utility's transmission zone. This cost can be obtained through the website maintained by PJM Interconnection at www.pjm.com

"Basic generation service" has the meaning assigned to this term at N.J.A.C. 14:4-8.2.

“Class I renewable energy” has the meaning assigned to this term in N.J.A.C. 14:4-8.2.

"Customer-generator" means a residential or small commercial customer that generates electricity, on the customer's side of the meter.

“Customer-generator facility” means the equipment used by a customer-generator to generate, manage, and monitor electricity. A customer-generator facility typically includes an electric generator and/or an equipment package, as defined herein.

"Electric distribution company" or “EDC” means an electric public utility, as the term is defined in N.J.S.A. 48:2-13, that transmits or distributes electricity to end users within New Jersey. An EDC cannot be an electric power supplier, but may provide basic generation service.

"Electric distribution system" means that portion of an electric system which delivers electricity from transformation points on the transmission system to points of connection at a customer's premises. An electric distribution system generally carries less than 69 kilovolts of electricity.

"Electric power supplier" has the meaning assigned to this term at N.J.A.C. 14:4-8.2.

“Equipment package” means a group of components connecting an electric generator with an electric distribution system, and includes all interface equipment including switchgear, inverters, or other interface devices. An equipment package may include an integrated generator or electric source.

“Fault current” means electrical current that flows through a circuit and is produced by an electrical fault, such as to ground, double-phase to ground, three-phase to ground, phase-to-phase, and three-phase. A fault current is several times larger in magnitude than the current that normally flows through a circuit.

“Good utility practice” has the same meaning as assigned to this term in the Amended and Restated Operating Agreement of PJM Interconnection (October 2003), as amended and supplemented, which is incorporated herein by reference. The Operating Agreement can be obtained on the PJM Interconnection website at www.pjm.com. As of {effective date of this rule}, the Operating Agreement defines this term as "a practice, method, policy, or action engaged in and/or accepted by a significant portion of the electric industry in a region, which a reasonable utility official would expect, in light of the facts reasonably discernable at the time, to accomplish the desired result reliably, safely and expeditiously."

“IEEE standards” means the standards published by the Institute of Electrical and Electronic Engineers, available at www.ieee.org.

“Interconnection agreement” means an agreement between a customer-generator and an EDC, which governs the connection of the customer-generator facility to the electric distribution system, as well as the ongoing operation of the customer-generator facility after it is connected to the system. An interconnection agreement shall follow the standard form agreement developed by the Board and posted on the Board’s website at www.bpu.state.nj.us.

“kW” means kilowatts, a unit of power representing 1,000 watts. A kW equals 1/1000 of a MW, as defined herein.

"Net metering" means a system of metering electricity in which the EDC:

1. Credits a customer-generator at the full retail rate for each kilowatt-hour produced by a class I renewable energy system installed on the customer-generator’s side of the electric revenue meter, up to the total amount of electricity used by that customer during an annualized period; and
2. Compensates the customer-generator at the end of the annualized period for any remaining credits, at a rate equal to the supplier/provider's avoided cost of wholesale power.

“MW” means megawatts, a unit of power representing 1,000,000 watts. A megawatt equals 1000 kW.

“Point of common coupling” has the same meaning as assigned to this term in IEEE Standard 1547 Section 3.0 (published July 2003), as amended and supplemented, which is incorporated herein by reference. IEEE standard 1547 can be obtained through the IEEE website at www.ieee.org. As of {effective date of this rule}, IEEE Standard 1547 Section 3.0 defined this term as "the point in the interconnection of a customer-generator facility with an electric distribution system at which the harmonic limits are applied."

"Solar electric generation" has the meaning assigned to this term at N.J.A.C. 14:4-8.2.

“Small commercial customer” means a non-residential electrical customer with less than 10 MW of peak demand, as determined by the most recently measured annual peak demand on the customer’s demand meter, or by the peak load contribution for the customer as submitted by the EDC to the PJM RTO for load planning purposes.

“Spot network” has the same meaning as assigned to the term under IEEE Standard 1547 Section 4.1.4, (published July 2003), as amended and supplemented, which is incorporated herein by reference. IEEE standard 1547 can be obtained through the IEEE website at www.ieee.org. As of {effective date of this rule}, IEEE Standard 1547 defined "spot network" as "a type of electric distribution system that uses two or more inter-tied transformers to supply an electrical network circuit." A spot network is generally used to supply power to a single customer or a small group of customers.

"Supplier/provider" means an electric power supplier or a basic generation service provider.

14:4-9.3 Net metering general provisions

14:4-9.4 Meters and metering

14:4-9.5 General interconnection provisions

(a) Each EDC shall provide the following three review procedures for applications for interconnection of customer-generator facilities:

1. Level 1 – an EDC shall use this review procedure for all applications to connect inverter-based customer-generator facilities, which have a power rating of 10 kW or less, and which meet the certification requirements at N.J.A.C. 14:4-9.6. Level 1 interconnection review procedures are set forth at N.J.A.C. 14:4-9.7;
2. Level 2 – an EDC shall use this review procedure for applications to connect customer-generator facilities with a power rating of 2 MW or less, which meet the certification requirements at N.J.A.C. 14:4-9.6. Level 2 interconnection review procedures are set forth at N.J.A.C. 14:4-9.8; and
3. Level 3 – an EDC shall use this review procedure for applications to connect customer-generator facilities with a power rating of 2 MW or less, which do not qualify for either the level 1 or level 2 interconnection review procedures. Level 3 interconnection review procedures are set forth at N.J.A.C. 14:4-9.9.

(b) Each EDC shall designate an employee or office from which an applicant can obtain basic application forms and information through an informal process. On request, this employee or office shall provide all relevant forms, documents, and technical requirements for submittal of a complete application for interconnection review under this section , as well as specific information necessary to contact the EDC representatives assigned to review the application.

(c) Upon request, the EDC shall meet with an applicant who qualifies for level 2 or level 3 interconnection review, to assist them in preparing the application.

(d) An application for interconnection review shall be submitted on a standard form, available from the EDC and posted on the Board's website at www.bpu.state.nj.us. The application form will require the following types of information:

1. Basic information regarding the applicant and the electricity supplier(s) involved;
2. Information regarding the type and specifications of the customer-generator facility;
3. Information regarding the contractor who will install the customer-generator facility; and
4. Certifications and agreements regarding utility access to the customer-generator's property, emergency procedures, liability, compliance with electrical codes, proper operation and maintenance, receipt of basic information; and
5. Other similar information that is necessary to determine compliance with this chapter.

(e) An EDC shall not be responsible for the cost of determining the rating of equipment owned by a customer-generator, or of equipment owned by other local customers.

(f) The provisions of this subchapter that apply to interconnection are primarily intended for customer-generator facilities that are eligible for net metering; that is, renewable generation facilities with a capacity no greater than two megawatts, which generate electricity for retail transactions. However, these provisions may be used for review of other interconnections at the discretion of the EDC.

(g) If the interconnection of a customer-generator facility is subject to interconnection requirements of FERC or PJM, the provisions of this subchapter that apply to interconnection apply to that facility only to the extent that they do not conflict with the interconnection requirements of FERC or PJM.

(h) If an applicant for interconnection disagrees with an EDC's determination of fact or need regarding matters covered in this subchapter, or if any person has a complaint regarding matters covered herein, the applicant or other person may file an informal complaint with the Board under N.J.A.C. 14:1-5.13, or may file a petition with the Board under N.J.A.C. 14:1-5.

14:4-9.6 Certification of customer-generator facilities

(a) In order to qualify for the level 1 and the level 2 interconnection review procedures described at N.J.A.C. 14:4-9.7 and 9.8, a customer-generator facility must be certified as complying with the following standards, as applicable:

1. IEEE 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems, as amended and supplemented, which is incorporated by reference herein. IEEE standard 1547 can be obtained through the IEEE website at www.ieee.org; and
2. UL 1741, Inverters, Converters, and Controllers for Use in Independent Power Systems (January 2001), as amended and supplemented, which is incorporated

by reference herein. UL standards can be obtained through the Underwriters Laboratories website at www.ul.com.

(b) An equipment package shall be considered certified for interconnected operation if it has been submitted by a manufacturer to a nationally recognized testing and certification laboratory, and has been tested and listed by the laboratory for continuous interactive operation with an electric distribution system in compliance with the applicable codes and standards listed in (a) above.

(c) If the equipment package has been tested and listed in accordance with this section as an integrated package, which includes a generator or other electric source, the equipment package shall be deemed certified, and the EDC shall not require further design review, testing or additional equipment.

(d) If the equipment package includes only the interface components (switchgear, inverters, or other interface devices), an interconnection applicant must show that the generator or other electric source being utilized with the equipment package is compatible with the equipment package and consistent with the testing and listing specified for the package. If the generator or electric source being utilized with the equipment package is consistent with the testing and listing performed by the nationally recognized testing and certification laboratory, the equipment package shall be deemed certified, and the EDC shall not require further design review, testing or additional equipment.

(e) A certified equipment package does not include equipment provided by the EDC.

14:4-9.7 Level 1 interconnection review

(a) Each EDC shall adopt a level 1 interconnection review procedure. The EDC shall use the level 1 review procedure only for an application to interconnect a customer-generator facility that meets all of the following criteria:

1. The facility is inverter-based;
2. The facility has a capacity of 10 kW or less; and
3. The facility has been certified in accordance with N.J.A.C. 14:4-9.6.

(b) For a customer-generator facility described at (a) above, the EDC shall approve interconnection under the level 1 interconnection review procedure if all of the applicable requirements at (c) through (g) below are met. An EDC shall not impose additional requirements not specifically authorized under this section.

(c) The aggregate generation capacity on the distribution circuit to which the customer-generator facility will interconnect, including the capacity of the customer-generator facility, shall not contribute more than 10% to the distribution circuit's maximum fault current at the point on the high voltage (primary) level that is nearest the proposed point of common coupling.

- (d) A customer-generator facility's point of common coupling shall not be on a transmission line, a spot network, or an area network.
- (e) If a customer-generator facility is to be connected to a radial distribution circuit, the aggregate generation capacity connected to the circuit, including that of the customer-generator facility, shall not exceed 10% (15% for solar electric generation) of the circuit's total annual peak load, as most recently measured at the substation.
- (f) If a customer-generator facility is to be connected to a single-phase shared secondary, the aggregate generation capacity connected to the shared secondary, including the customer-generator facility, shall not exceed 20 kilovolt-amps (kVA).
- (g) If a single-phase customer-generator facility is to be connected to a transformer center tap neutral of a 240 volt service, the addition of the customer-generator facility shall not create an imbalance between the two sides of the 240 volt service of more than 20% of nameplate rating of the service transformer.
- (h) An applicant shall submit an application for level 1 interconnection review on a standard form, available from the EDC and posted on the Board's website at www.bpu.state.nj.us. See N.J.A.C. 14:4-9.5(d). An applicant may choose to simultaneously submit an EDC's standard form interconnection agreement executed by the applicant.
- (i) Within three business days after receiving an application for level 1 interconnection review, the EDC shall provide written or e-mail notice to the applicant that it received the application and whether the application is complete. If the application is incomplete, the written notice shall include a list of all of the information needed to complete the application.
- (j) Within ten business days after the EDC notifies the applicant that the application is complete under (i) above, the EDC shall notify the applicant that:
1. The customer-generator facility meets all of the criteria at (c) through (g) above that apply to the facility, and the interconnection will be finally approved upon completion of the process set forth at (k) through (o) below; or
 2. The customer-generator facility has failed to meet one or more of the applicable criteria at (c) through (g) above, and the interconnection application is denied.
- (k) If a customer-generator facility meets all of the applicable criteria at (c) through (g) above, the EDC shall, within three business days after sending the notice of approval under (j)1 above, do the following:
1. Notify the applicant if an EDC inspection of the customer-generator facility for compliance with this subchapter is required prior to starting operation of the facility; and
 2. Execute and send to the applicant a level 1 interconnection agreement unless:
 - i. The EDC does not require an interconnection agreement for customer-generator facilities that qualify for level 1 interconnection review; or

- ii. The applicant has already submitted such an agreement with its application for interconnection, in accordance with (h) above.

(h) An applicant that receives an interconnection agreement under (k) above shall execute the agreement and return it to the EDC at least five business days prior to starting operation of the customer-generator facility (unless the EDC does not so require). The applicant shall indicate the anticipated start date for operation of the customer-generator facility. If the EDC requires an inspection of the customer-generator facility, the applicant shall not begin operating the facility until completion of the inspection.

(i) Upon receipt of the executed interconnection agreement from the customer-generator, and satisfactory completion of an inspection if required, the EDC shall approve the interconnection, conditioned on approval by the electrical code officials with jurisdiction over the interconnection.

(n) If an EDC does not notify a level 1 applicant in writing or by e-mail whether the interconnection is approved or denied within 20 business days after the receipt of an application, the interconnection shall be deemed approved. The 20 days shall begin on the date that the EDC sends the written or e-mail notice or application receipt required under (i) above.

(o) A customer-generator shall notify the EDC of the anticipated start date for operation of the customer-generator facility at least five days prior to starting operation, either through the submittal of the interconnection agreement or in a separate notice.

(p) If an application for level 1 interconnection review is denied because it does not meet one or more of the applicable requirements in this section, an applicant may resubmit the application under the level 2 or level 3 interconnection review procedure, as appropriate.

14:4-9.8 Level 2 interconnection review

(a) Each EDC shall adopt a level 2 interconnection review procedure. The EDC shall use the level 2 interconnection review procedure for an application to interconnect a customer-generator facility that meets both of the following criteria:

1. The facility has a capacity of 2 megawatts or less; and
2. The facility has been certified in accordance with N.J.A.C. 14:4-9.6.

(b) For a customer-generator facility described at (a) above, the EDC shall approve interconnection under the level 2 interconnection review procedure if all of the applicable requirements at (c) through (l) below are met. An EDC shall not impose additional requirements not specifically authorized under this section.

(c) The aggregate generation capacity on the distribution circuit to which the customer-generator facility will interconnect, including the capacity of the customer-generator

facility, shall not cause any distribution protective equipment (including but not limited to substation breakers, fuse cutouts, and line reclosers), or customer equipment on the electric distribution system, to exceed 90 percent of the short circuit interrupting capability of the equipment. In addition, a customer-generator facility shall not be connected to a circuit that already exceeds 90 percent of the short circuit interrupting capability, prior to interconnection of the facility.

(d) If there are posted transient stability limits to generating units located in the general electrical vicinity of the proposed point of common coupling (e.g., within 3 or 4 transmission voltage level busses), the aggregate generation capacity (including the customer-generator facility) connected to the distribution low voltage side of the substation transformer feeding the distribution circuit containing the point of common coupling shall not exceed 10 MW.

(e) The aggregate generation capacity connected to the distribution circuit, including the customer-generator facility, shall not contribute more than 10% to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed point of common coupling.

(f) If a customer-generator facility is to be connected to a radial distribution circuit, the aggregate generation capacity connected to the electric distribution system by non-EDC sources, including the customer-generator facility, shall not exceed 10% (or 15% for solar electric generation) of the total circuit annual peak load. For the purposes of this paragraph, annual peak load shall be based on measurements taken over the twelve months previous to the submittal of the application, measured at the substation nearest to the customer-generator facility;

(g) If a customer-generator facility is to be connected to three-phase, three wire primary EDC distribution lines, a three-phase or single-phase generator shall be connected phase-to-phase.

(h) If a customer-generator facility is to be connected to three-phase, four wire primary EDC distribution lines, a three-phase or single phase generator shall be connected line-to-neutral and shall be effectively grounded.

(i) If a customer-generator facility is to be connected to a single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the customer-generator facility, shall not exceed 20 kilovolt-amperes (kVA).

(j) If a customer-generator facility is single-phase and is to be connected to a transformer center tap neutral of a 240 volt service, the addition of the customer-generator facility shall not create an imbalance between the two sides of the 240 volt service, which is greater than 20% of the nameplate rating of the service transformer.

(k) A customer-generator facility's point of common coupling shall not be on a transmission line.

(l) If a customer-generator facility's proposed point of common coupling is on a spot or area network, the interconnection shall meet the following requirements, in addition to the requirements in (c) through (k) above:

1. For a customer-generator facility that will be connected to a spot network circuit, the aggregate generation capacity connected to that spot network from customer-generator facilities, including the customer-generator facility, shall not exceed 5% of the spot network's maximum load;
2. For a customer-generator facility that utilizes inverter based protective functions, which will be connected to an area network, the customer-generator facility, combined with other exporting customer-generator facilities on the load side of network protective devices, shall not exceed 10% of the minimum annual load on the network, or 500 kW, whichever is less. For the purposes of this paragraph, the percent of minimum load for solar electric generation customer-generator facility shall be calculated based on the minimum load occurring during an off-peak daylight period;
3. For a customer-generator facility that will be connected to a spot or an area network that does not utilize inverter based protective functions, or for an inverter based customer-generator facility that does not meet the requirements of 1 or 2 above, the customer-generator facility shall utilize reverse power relays or other protection devices that ensure no export of power from the customer-generator facility, including inadvertent export (under fault conditions) that could adversely affect protective devices on the network.

(m) An applicant shall submit an application for level 2 interconnection review on a standard form, available from the EDC and posted on the Board's website at www.bpu.state.nj.us. An applicant may choose to simultaneously submit an EDC's standard form interconnection agreement executed by the applicant.

(n) Within three business days after receiving an application for level 2 interconnection review, the EDC shall provide written or e-mail notice to the applicant that it received the application and whether the application is complete. If the application is incomplete, the written notice shall include a list of all of the information needed to complete the application.

(o) Within fifteen business days after the EDC notifies the applicant that the application is complete under (n) above, the EDC shall perform an initial review of the proposed interconnection to determine whether the interconnection meets the applicable requirements at (c) through (l) above. During this initial review, the EDC may, at its own expense, conduct any studies or tests it deems necessary to evaluate the proposed interconnection. The initial review shall result in one of the following determinations:

1. The customer-generator facility meets the applicable requirements in (c) through (l) above. In this case, the EDC shall notify the applicant that the interconnection will be finally approved upon completion of the process set forth at (p) through (r) below. Within three business days after this notice, the EDC shall provide the applicant with an executable interconnection agreement;

2. The customer-generator facility has failed to meet one or more of the applicable requirements at (c) through (l) above, but the EDC has nevertheless determined that the customer-generator facility can be interconnected consistent with safety, reliability, and power quality. In this case, the EDC shall notify the applicant that the interconnection will be finally approved upon completion of the process set forth at (p) through (r) below. Within five business days after this notice, the EDC shall provide the applicant with an executable interconnection agreement;
3. The customer-generator facility has failed to meet one or more of the applicable requirements at (c) through (k) above, but the initial review indicates that additional review may enable the EDC to determine that the customer-generator facility can be interconnected consistent with safety, reliability, and power quality. In such a case, the EDC shall offer to perform additional review to determine whether minor modifications to the electric distribution system (for example, changing meters, fuses, or relay settings) would enable the interconnection to be made consistent with safety, reliability and power quality. The EDC shall provide to the applicant a non-binding, good faith estimate of the costs of such additional review, and/or such minor modifications. The EDC shall undertake the additional review or modifications only after the applicant consents to pay for the review and/or modifications; or
4. The customer-generator facility has failed to meet one or more of the applicable requirements at (c) through (l) above, and the initial review indicates that additional review would not enable the EDC to determine that the customer-generator facility could be interconnected consistent with safety, reliability, and power quality. In such a case, the EDC shall notify the applicant that the interconnection application has been denied, and shall provide an explanation of the reason(s) for the denial, including a list of additional information and/or modifications to the customer-generator's facility, which would be required in order to obtain an approval under level 2 interconnection procedures.

(p) An applicant that receives an interconnection agreement under (o)1 or 2 above shall:

1. Execute the agreement and return it to the EDC at least ten business days prior to starting operation of the customer-generator facility (unless the EDC does not so require); and
2. Indicate to the EDC the anticipated start date for operation of the customer-generator facility.

(q) The EDC may require an EDC inspection of a customer-generator facility for compliance with this subchapter prior to operation, and may require and arrange for witness of commissioning tests as set forth in IEEE standard 1547 (published July 2003), as amended and supplemented, which is incorporated by reference herein. The EDC shall schedule any inspections or tests under this section promptly and within a reasonable time after submittal of the application. The applicant shall not begin

operating the customer-generator facility until after the inspection and testing is completed.

(r) For an applicant that receives an interconnection agreement under (p)1 or 2 above, approval of interconnected operation of the customer-generator facility shall be conditioned on all of the following occurring:

1. The interconnection has been approved by the electrical code official with jurisdiction over the interconnection;
2. Any EDC inspection and/or witnessing of commissioning tests arranged under (q) above are successfully completed; and
3. The planned start date provided by the applicant under (q) above has passed.

(s) If an application for level 2 interconnection review is denied because it does not meet one or more of the requirements in this section, the applicant may resubmit the application under the level 3 interconnection review procedure.

14:4-9.9 Level 3 interconnection review

(a) Each EDC shall adopt a level 3 interconnection review procedure. The EDC shall use the level 3 review procedure for an application to interconnect a customer-generator facility that has a capacity less than 2 megawatts and does not qualify for the level 1 or level 2 interconnection review procedures set forth at N.J.A.C. 14:4-9.7 and 9.8.

(b) The EDC shall conduct an initial review of the application and shall offer the applicant an opportunity to meet with EDC staff to discuss the application. At the meeting, the EDC shall provide pertinent information to the applicant, such as the available fault current at the proposed interconnection location, the existing peak loading on the lines in the general vicinity of the customer-generator facility, and the configuration of the distribution lines at the proposed point of common coupling.

(c) The EDC shall provide an impact study agreement to the applicant, which shall include a good faith cost estimate for an impact study to be performed by the EDC. An impact study is an engineering analysis of the probable impact of a customer-generator facility on the safety and reliability of the EDC's electric distribution system. An impact study shall be conducted in accordance with good utility practice, as defined at N.J.A.C. 14:4-9.2, and shall:

1. Detail the impacts to the electric distribution system that would result if the customer-generator facility were interconnected without modifications to either the customer-generator facility or to the electric distribution system;
2. Identify any modifications to the EDC's electric distribution system that would be necessary to accommodate the proposed interconnection; and
3. Focus on power flows and utility protective devices, including control requirements.

(d) If the proposed interconnection may affect electric transmission or delivery systems other than that controlled by the EDC, operators of these other systems may require additional studies to determine the potential impact of the interconnection on these

systems. If such additional studies are required, the EDC shall coordinate the studies but shall not be responsible for their timing. The applicant shall be responsible for the costs of any such additional studies required by another affected system. Such studies shall be conducted only after the applicant has provided written authorization.

(e) After the applicant has executed the impact study agreement and has paid the EDC the amount of the good faith estimate required under (c) above, the EDC shall conduct the impact study and shall notify the applicant of the results as follows:

1. If the impact study indicates that only insubstantial modifications to the EDC's electric distribution system are necessary to accommodate the proposed interconnection, the EDC shall send the applicant an interconnection agreement that details the scope of the necessary modifications and an estimate of their cost; or
2. If the impact study indicates that substantial modifications to the EDC's electric distribution system are necessary to accommodate the proposed interconnection, the EDC shall provide an estimate of the cost of the modifications, which shall be accurate to within plus or minus 25%. In addition, the EDC shall offer to conduct a facilities study at the applicant's expense, which will identify the types and cost of equipment needed to safely interconnect the applicant's customer-generator facility.

(f) If an applicant requests a facilities study under (e)2 above, the EDC shall provide a facilities study agreement. The facilities study agreement shall describe the work to be undertaken in the facilities study and shall include a good faith estimate of the cost to the applicant for completion of the study. Upon the execution by the applicant of the facilities study agreement, the EDC shall conduct a facilities study, which shall identify the facilities necessary to safely interconnect the customer-generator facility with the EDC's electric distribution system, the cost of those facilities, and the time required to build and install those facilities.

(g) Upon completion of a facilities study, the EDC shall provide the applicant with the results of the study and an executable interconnection agreement. The agreement shall list the conditions and facilities necessary for the customer-generator facility to safely interconnect with the EDC's electric distribution system, the cost of those facilities, and the estimated time required to build and install those facilities.

(h) If the applicant wishes to interconnect, it shall execute the interconnection agreement, provide a deposit of not more than 50% of the cost of the facilities identified in the facilities study, complete installation of the customer-generator facility, and agree to pay the EDC the amount required for the facilities needed to interconnect as identified in the facilities study.

(i) Within 15 business days after notice from the applicant that the customer-generator facility has been installed, the EDC shall inspect the customer-generator facility and shall arrange to witness any commissioning tests required under IEEE Standard 1547.

The EDC and the applicant shall select a date by mutual agreement for the EDC to witness commissioning tests.

(j) Provided that the customer-generator facility passes any required commissioning tests satisfactorily, the EDC shall notify the applicant in writing, within three business days after the tests, of one of the following:

1. The interconnection is approved and the customer-generator facility may begin operation; or
2. The facilities study identified necessary construction that has not been completed, the date upon which the construction will be completed and the date when the customer-generator facility may begin operation.

(k) If the commissioning tests are not satisfactory, the customer-generator shall repair or replace the unsatisfactory equipment and reschedule a commissioning test pursuant to (i) above.

(l) Each EDC shall include in any tariff or published procedures for level 3 interconnection review each element of an impact study, including a description of the review the EDC will undertake for each element. An impact study shall include the following elements, as applicable:

1. Load flow study;
2. Short-circuit study;
3. Circuit protection and coordination study;
4. Impact on the operation of the electric distribution system;
5. Stability study (and the conditions that would justify including this element in the impact study);
6. Voltage collapse study (and the conditions that would justify including this element in the impact study); and
7. Additional elements, if approved in writing by Board staff prior to the impact study.

14:4-9.10 Interconnection fees

(a) An EDC or supplier/provider shall not charge an application or other fee to an applicant that requests level 1 interconnection review. However, if an application for level 1 interconnection review is denied because it does not meet the requirements for level 1 interconnection review, and the applicant resubmits the application under another review procedure in accordance with N.J.A.C. 14:4-9.7(p), the EDC may impose a fee for the resubmitted application, consistent with this section.

(b) For a level 2 interconnection review, the EDC may charge fees of up to \$50 plus \$1 per kilowatt of the customer-generator facility's capacity, plus the cost of any minor modifications to the electric distribution system or additional review, if required under N.J.A.C. 14:4-9.8(o)3 or 4. Costs for such minor modifications or additional review shall be based on EDC estimates and shall be subject to case by case review by the Board or its designee. Costs for engineering work done as part of any additional review shall not exceed \$100 per hour.

(c) For a level 3 interconnection review, the EDC may charge fees of up to \$100 plus \$2 per kilowatt of the customer-generator facility's capacity, as well as charges for actual time spent on any impact and/or facilities studies required under N.J.A.C. 14:4-9.9. Costs for engineering work done as part of an impact study or facilities study shall not exceed \$100 per hour. If the EDC must install facilities in order to accommodate the interconnection of the customer-generator facility, the cost of such facilities shall be the responsibility of the applicant.

14:4-9.11 Requirements after approval of an interconnection

(a) An EDC shall not require an applicant whose facility meets the criteria for interconnection approval under the level 1 or level 2 interconnection review procedure required pursuant to N.J.A.C. 14:4-9.7 and N.J.A.C. 14:4-9.8, to install additional controls or external disconnect switches not included in the equipment package, to perform or pay for additional tests, or to purchase additional liability insurance, except if agreed to by the applicant.

(b) An EDC shall not charge any fee or other charge for connecting to the EDC's equipment or for operation of a customer-generator facility for the purposes of net metering, except for the fees provided for under this subchapter.

(c) Once a net metering interconnection has been approved under this subchapter, the EDC shall not require a customer-generator to test or perform maintenance on its facility except for the following:

1. An annual test in which the customer-generator's facility is disconnected from the electric distribution company's equipment to ensure that the inverter stops delivering power to the grid;
2. Any manufacturer-recommended testing or maintenance; and
3. Any post-installation testing necessary to ensure compliance with IEEE 1547 or to ensure safety.

(d) When a customer-generator facility approved through a level 2 or level 3 review undergoes maintenance or testing in accordance with the requirements of this subchapter, the customer-generator shall retain written records documenting the maintenance and the results of testing. No recordkeeping is required for maintenance or testing performed on a customer-generator facility approved through a level 1 review.

(d) An EDC shall have the right to inspect a customer-generator's facility after interconnection approval is granted, at reasonable hours and with reasonable prior notice to the customer-generator. If the EDC discovers that the customer-generator's facility is not in compliance with the requirements of this subchapter, and the non-compliance adversely affects the safety or reliability of the electric distribution system, the EDC may require the customer-generator to disconnect the customer-generator facility until compliance is achieved.

