

NEW JERSEY BOARD OF PUBLIC UTILITIES

Courtesy Copy of Proposed Amendments to N.J.A.C. 14:4-9 NET METERING AND INTERCONNECTION STANDARDS FOR CLASS I RENEWABLE ENERGY SYSTEMS

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BOARD OF PUBLIC UTILITIES

Proposed Amendments: N.J.A.C. 14:4-9 (Net Metering Standards for Wind and Photovoltaic Systems)

Authorized By: Board of Public Utilities, Jeanne M. Fox, President, and Frederick F. Butler, Carol J. Murphy, Connie O. Hughes, and Jack Alter, Commissioners.

Authority: N.J.S.A. 48:2-13 and 48:3-49 et seq., in particular 48:3-87

Calendar Reference: See Summary below for explanation of exception to calendar requirement.

BPU Docket Number: EX 03100795

Proposal Number: PRN 2003-

Submit comments by January 30, 2004 to:

Board of Public Utilities
Kristi Izzo, Secretary
ATTN: BPU Docket Number: EX 03100795
Two Gateway Center
Newark, New Jersey 07102

The agency proposal follows:

Summary

The New Jersey Board of Public Utilities (Board) is proposing amendments to its rules for net metering at N.J.A.C. 14:4-9. These rules implement provisions of the New Jersey Electric Discount and Energy Competition Act, N.J.S.A. 48:3-49 et seq. (EDECA).

Subchapter 9 requires each electric power supplier, basic generation service provider, and electric distribution company to offer net metering to customers who install certain renewable energy generators on the customer's side of the electric meter. The existing rules limit net metering to customer-generator facilities with a capacity of 100 kilowatts or less. The proposed amendments would increase the maximum customer-generator capacity to two megawatts (2 MW).

Distributed renewable generation not only can meet our renewable goals, but will also provide greater reliability for the grid, greater security (it is more difficult for nefarious actors to target electric power production when it is distributed instead of centralized at large power plants), more cost effective, and better at promoting economic development in New Jersey. However, in order to increase distributed generation use, we must have simplified interconnection procedures and a simplified interconnection agreement that is not beyond the comprehension of residents and small commercial customers.

In order to develop a simplified interconnection procedure and agreement, the Board reviewed four main documents: the Federal Energy Regulatory Commission's anticipated notice of proposed rulemaking (ANOPR) consensus filing; model interconnection procedures and agreements developed by the National Association of Regulatory Commissioners (NARUC); the consensus tariff filed in an interconnection proceeding in Massachusetts¹; and model interconnection procedures and agreement developed by the Interstate Renewable Energy Council (IREC) (This is available at www.irecusa.org/articles//static/1/binaries/03Sep06_IREC_Model_Interconnection_Rule.pdf). The Board has taken the best parts of each of these documents and has created a rule that will make New Jersey one of the best states for renewable energy development. In fact, the Board believes that the proposed rules can serve as a model for other states and FERC to use in promoting small generator interconnections.

In the proposed rules, the Board has attempted to strike the best balance between protecting the safety and reliability of the electric grid, and promoting the use of clean distributed generation. Often these goals can appear to be in direct conflict, and as a result, interconnection rules often err on the side of protecting the grid. However, such an error erects unnecessary barriers to the use of distributed generation. Further, it leaves the generation sector, which is increasingly important as we contemplate the fragility of our high voltage transmission system, as an underutilized asset.

The increase in the capacity of net metering equipment will reduce barriers that work against the goals set forth by Governor McGreevey's Renewable Energy Task Force (Task Force) in a report submitted to the Governor on April 24, 2003. The Task Force Report calls for significant increases in the amount of renewable generation in New Jersey, particularly solar electric generation. In order to achieve these goals, developers of renewable power will need to market much larger systems than customer-generators are currently permitted to use for net metering under the existing rules.

To safely install these larger net metered systems, a concomitant upgrade in the standard interconnection procedure is required. Therefore, the proposed amendments to

¹ Massachusetts Department of Telecommunications and Energy, "Investigation by the Department of Telecommunications and Energy on its own Motion into Distributed Generation," Order 02-38-A, Oct. 3, 2002 and Tariff to Accompany Proposed Uniform Standards for Interconnecting Distributed Generation in Massachusetts filed May 15, 2003.

subchapter 9 also set forth revised interconnection requirements, designed to standardize the procedures for approving the interconnection of a customer-generator facility with the existing electric distribution system.

The proposed amendments would also expand the class of customer-generators who are permitted to net meter. The existing rules allow net metering only for wind and solar photovoltaic customer-generators. The proposed amendments would extend the net metering option to any customer who generates class I renewable energy (other types of class I renewable energy include energy generated through geothermal, tidal, and other forces, listed at N.J.A.C. 14:4-8). By extending net metering to other types of class I renewable energy generators, the rules will encourage generation of clean energy, and will also encourage distributed energy generation, in which many small generators are located close to the consumer of the energy being generated. Promoting clean distributed generation increases the reliability of the grid, enhances security, promotes economic development in New Jersey, and diversifies the resources used to produce electricity for New Jersey consumers. However, due to existing technologies and economic conditions, the Board expects that the majority of the customers that net meter in the foreseeable future will continue to use solar-based generators.

These proposed amendments are based on public input, the Board's past experience with net metering, and models drafted by regional and national agencies and organizations. The Board has sought input and comments on the proposed amendments from a broad range of stakeholders, including national experts, utility personnel and the renewable energy industry. On September 22, 2003, the Board hosted a technical workshop to discuss the technical implementation of the proposed changes and sought comment from the participants as well. As mentioned above, the Board has also evaluated recent proceedings conducted at the national level by the Federal Energy Regulatory Commission (FERC) and has consulted model standards drafted by the proposed changes in this rule are a result of the input received from these multiple avenues.

As the Board has provided a 60-day comment period on these proposed amendments, the proposed amendments are exempted from the rulemaking calendar requirements set forth at N.J.A.C. 1:30-3.1 and 3.2, pursuant to N.J.A.C. 1:30-3.3(a)5.

Section-by-section description of proposed amendments:

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

14:4-9.1 Scope

Minor clarifying amendments, which do not affect meaning, are proposed to N.J.A.C. 14:4-9.1. The changes clarify that the subchapter applies only to entities with residential or small commercial customers who generate electricity using class I renewable energy, and also that the subchapter sets forth requirements for the interconnection of customer-

generator facilities that generate class I renewable energy with electric distribution systems.

14:4-9.2 Definitions

The existing definitions of "Act," "electric generation service" and "network distribution system" are proposed for deletion because these terms are not used in the rule as it is proposed to be amended.

Changes are proposed to the definition of "annualized period," to clarify that the phrase "net metering becomes applicable" means that the customer-generator's facility is interconnected and is generating electricity; and to clarify that each period of 12 months is an annualized period.

Changes are proposed to the definition of "avoided cost of wholesale power," to identify a source of information on average locational marginal energy prices.

A new definition is proposed for "applicant," for use in provisions governing review of requests to interconnect a customer-generator facility with an electric distribution system.

A new definition is proposed for "area network," for use in provisions which impose special conditions on interconnections to area networks. The definition incorporates by reference the definition of this term in IEEE standard 1547.

The definition of "basic generation service" is proposed to be amended to remove its substance and replace it with a cross reference to the same definition in N.J.A.C. 14:4-8.2, in order to ensure consistency and reduce redundancy.

A new definition of "class I renewable energy" is proposed because these proposed amendments expand the class of customer-generators who may net meter, to include anyone generating class I renewable energy. Also to reflect this expansion, the definition of "customer-generator" is amended to include generators of all types of class I renewable energy. The existing definition limits a customer-generator to a person using a solar photovoltaic or wind system.

A new definition is proposed for "customer-generator facility." This is the generating system used by the customer-generator to generate energy.

An additional sentence is proposed to be added to the definition of "electric distribution company," or "EDC." The sentence clarifies that an EDC cannot be an electric power supplier but may provide basic generation service.

A new definition of "electric distribution system" is proposed, to describe the systems which provide electricity to load, or customers. An electric distribution system is distinguished from an electric transmission system, which moves electricity from the location of its generation to an electric distribution system. Consistent with the use of

the term by PJM Interconnection (the regional transmission organization that coordinates the movement of wholesale electricity in New Jersey and the PJM region), an electric distribution system generally carries less than 69 kilovolts of electricity.

The substance of the definition of "electric power supplier" is proposed to be replaced with a cross-reference to the definition of the term in N.J.A.C. 14:4-8.2, in order to ensure consistency and avoid redundancy.

A new definition of "equipment package" is proposed, for use in interconnection provisions at N.J.A.C. 14:4-9.6, which address certification of certain types of generating equipment.

A new definition of "fault current" is proposed, for use in provisions limiting the capacity of customer-generator facilities in relation to the fault current of a distribution circuit.

A new definition of "good utility practice" is proposed, for use in provisions governing the types of studies an EDC can require as a precondition to interconnection of certain customer-generator facilities with an EDC system. The definition is taken directly from the PJM operating agreement, and incorporates the PJM definition by reference.

A new definition of IEEE standards is proposed, because several provisions refer to such standards.

A new definition of "interconnection agreement" is proposed, for use in provisions requiring an agreement between the customer-generator and the EDC prior to interconnection.

A new definition of "kW" is proposed, so that this abbreviation for kilowatt can be used throughout the rules.

The existing definition of "net metering" is proposed to be replaced with a new definition that is clearer and easier to understand. In addition, the proposed definition includes additional information regarding the rate at which a customer-generator will be reimbursed for excess energy at the end of the annualized period.

The definition of "non-discriminatory rates" is proposed to be deleted, as its substance has been moved into N.J.A.C. 14:4-9.3(i).

A new definition of "MW" is proposed, so that this abbreviation for megawatt can be used throughout the rules.

A new definition is proposed for "point of common coupling." This is the location at which the customer-generator facility is physically connected to the electric distribution system. The definition incorporates by reference the definition of this term in IEEE standard 1547 Section 3.0.

A new definition is proposed for "solar electric generation." The definition cross-references the definition of this term found in recently proposed amendments to N.J.A.C. 14:4-8.2 (see 35 N.J.R. 4445), for consistency and brevity. Solar electric generation is a type of class I renewable energy that is generated using solar radiation.

A new definition of "small commercial customer" is proposed. The existing rule uses the term to identify the class of customer-generators who may net meter but does not define the term. This term is defined in the proposal as customers whose peak load is less than 10 MW.

A new definition is proposed for "spot network," for use in provisions that impose special requirements on interconnection of customer-generator facilities to these types of electric distribution networks.

A new definition of "supplier/provider" is proposed, to match that in recently proposed amendments to N.J.A.C. 14:4-8.2 (see 35 N.J.R. 4445).

14:4-9.3 Net metering general provisions

Minor clarifying changes that do not affect meaning are proposed to N.J.A.C. 14:4-9.3(a) and (b). In addition, the maximum allowable size of a customer-generator facility is proposed to be increased to 2 megawatts, from 100 kilowatts, as set forth in existing N.J.A.C. 14:4-9.3(g), which is proposed to be deleted.

Provisions governing meters and metering, found at existing N.J.A.C. 14:4-9.3(c), are proposed to be relocated in a new section on metering at proposed N.J.A.C. 14:4-9.4. Existing provisions at N.J.A.C. 14:4-9.3(d), which describe how the EDC provides credit to customer-generators for excess generation, are proposed for deletion, to be replaced by similar, clarified provisions at proposed new N.J.A.C. 14:4-9.3(c), (d) and (e). Existing provisions at N.J.A.C. 14:4-9.3(d)1, governing customers that switch to other suppliers, are relocated with clarifications at proposed N.J.A.C. 14:4-9.3(f).

Existing provisions for Board review and reporting regarding net metering at N.J.A.C. 14:4-9.3(e) are proposed for deletion.

Existing N.J.A.C. 14:4-9.3(f), which requires annual reporting by EDCs, is proposed for deletion, to be replaced by proposed new N.J.A.C. 14:4-9.3(g), which contains the same information, reformatted in a list for easier understanding.

Proposed N.J.A.C. 14:4-9.3(h) clarifies that the customer-generator may apply for renewable energy certificates or "RECs" based on energy generated, and may sell or trade any RECs issued. A REC is a certificate representing the environmental benefits of one megawatt-hour of electricity generated by a renewable energy facility. To create a REC, the renewable attribute of the energy is 'unbundled' from the energy itself. This enables a renewable energy generator to sell its energy to one energy supplier and sell

the renewable attribute certificate for that energy to a separate energy supplier, which would then use that certificate toward meeting its obligation under the Board's renewable portfolio standard (RPS) rules. This unbundled certificate program will allow New Jersey to meet its progressive renewable energy goals in an efficient, enforceable, market-based manner that allows the trading of attributes as certificates.

Proposed N.J.A.C. 14:4-9.3(i), which addresses non-discrimination against net metering customer-generators, includes non-discrimination provisions found in the existing rules at N.J.A.C. 14:4-9.3(a). In addition, the substance of the existing definition of non-discriminatory rates is relocated into the substance of this provision for brevity and clarity. Finally, an exception is added, so that different rates may be charged if a customer-generator has a special load profile approved by the Board.

Proposed N.J.A.C. 14:4-9.3(j) includes provisions found in the existing rules at N.J.A.C. 14:4-9.5(i), limiting fees and charges to customer-generators.

Existing N.J.A.C. 14:4-9.4 and 9.5 are proposed for repeal. Existing N.J.A.C. 14:4-9.4(a) and (b) address who bears the cost of meeting safety standards. The proposal includes provisions at N.J.A.C. 14:4-9.10, which set parameters for the sharing of costs between the EDC and the customer-generator.

Existing N.J.A.C. 14:4-9.4(c) and (d) require customer-generator facilities to comply with IEEE and UL standards. Existing N.J.A.C. 14:4-9.4(e) provides that certain equipment that is listed by UL shall not require additional testing. These provisions are replaced by the proposed provisions for certification at N.J.A.C. 14:4-9.6, which provide for certification and require the EDC to provide faster and cheaper review for equipment that is certified as compliant with IEEE and UL standards.

Existing N.J.A.C. 14:4-9.5 addresses general application contents and procedures for obtaining approval of interconnections. The application contents provisions found at existing N.J.A.C. 14:4-9.5(b)1 through 5 are relocated at proposed N.J.A.C. 14:4-9.5(d)1 through 5. Existing N.J.A.C. 14:4-9.5(c), which addresses application fees, is replaced by proposed fee provisions at N.J.A.C. 14:4-9.10. Existing N.J.A.C. 14:4-9.5(d) and (e) set forth application review procedures, which are replaced with the three-tiered system of review at N.J.A.C. 14:4-9.7 through 9, described in more detail in the summaries of those proposed sections.

Existing N.J.A.C. 14:4-9.5(f) through (h) address charges to customer-generators for studies performed by the EDC prior to approval of interconnection. These are replaced by proposed provisions at N.J.A.C. 14:4-9.10. In general, the existing provisions base study charges on the amount of time required to complete the study, with a cap on the total charge. The proposed provisions set basic study charges based on the size of the customer-generator facility, with additional charges allowed for extra review, or for necessary modifications to the EDC system. These additional charges are assessed at the actual cost to the EDC, except that the proposed rules place a cap on the cost of engineering work.

Existing N.J.A.C. 14:4-9.5(i) contains the same substance as found at proposed N.J.A.C. 14:4-9.6, which prohibits an EDC from applying additional requirements to customer-generator equipment that meets certain industry standards. Existing N.J.A.C. 14:4-9.5(j) sets conditions designed to prohibit the export of electricity from a customer-generator facility to the grid. Such export can be dangerous. For example, if utility workers shut off an electric line while perform maintenance, power coming onto the line from a customer-generator facility could injure or electrocute an unsuspecting utility worker. The issue of export is addressed in the proposed rules at N.J.A.C. 14:4-9.8(l). The proposed new provision is somewhat more stringent, in that it would prohibit any export, whereas the existing rule allows discretion on the part of the EDC in determining whether there is a potential for dangerous export.

Existing N.J.A.C. 14:4-9.5(k) sets limits on the testing which can be required of customer-generators. The substance of this provision is found at proposed N.J.A.C. 14:4-9.11(c). Existing N.J.A.C. 14:4-9.5(l) provides for EDC inspections of customer-generator facilities. This is replaced by provisions containing the same substance at proposed N.J.A.C. 14:4-9.11(d).

14:4-9.4 Meters and metering

Proposed new N.J.A.C. 14:4-9.4 contains metering provisions that replace and expand upon those found in the existing rules at N.J.A.C. 14:4-9.3(c). The proposed provisions contain the same substance as those at existing N.J.A.C. 14:4-9.3(c), except that the proposed provisions do not require an electronic meter capable of hourly readings, and do not set requirements for the EDC to supply meter readings to the customer. In addition, proposed N.J.A.C. 14:4-9.4 includes new requirements to ensure that meters can measure flow in both directions and are accurate, limits on the number of meters an EDC can require, and provisions specifying by whom the cost of meters shall be borne.

14:4-9.5 General interconnection application provisions

Proposed new N.J.A.C. 14:4-9.5 sets forth the three types of reviews (described in more detail below) that an EDC shall make available to applicants who wish to interconnect a customer-generator facility to the electric distribution system for the purpose of net metering. The three types of reviews range from simplified review, for the least complex interconnections, to standard review, for the most complex. Proposed N.J.A.C. 14:4-9.5 also requires an EDC to provide applicants with forms, information, and the option of a meeting.

14:4-9.6 Certification of customer-generator facilities

Proposed new N.J.A.C. 14:4-9.6 sets forth the requirements and procedure for certification of the equipment and components that can be used in building customer-

generator facilities. In order for a customer-generator facility to qualify for two of the three types of reviews (simplified and expedited), the components and equipment in the customer-generator facility must be tested and certified by a nationally recognized testing laboratory.

14:4-9.7 Simplified interconnection review

Proposed new N.J.A.C. 14:4-9.7 describes the types of customer-generator facilities that are to be reviewed under the simplified procedure, the standards that will be applied, and the application and review procedures. Simplified interconnection review is the quickest and least expensive type of review. It is available only for small, inverter-based customer-generator facilities that have been certified by a nationally recognized testing laboratory, in accordance with proposed N.J.A.C. 14:4-9.6.

Proposed N.J.A.C. 14:4-9.7 also includes provisions for an interconnection agreement between the EDC and the applicant, and allows resubmittal of the application under one of the other review procedures if the application is denied under the simplified procedure.

14:4-9.8 Expedited interconnection review

Proposed new N.J.A.C. 14:4-9.8 describes the types of customer-generator facilities that are to be reviewed under the expedited procedure, the standards that will be applied, and the application and review procedures. Expedited review is available for larger customer-generator facilities, but as with simplified review, the facility must be certified in accordance with N.J.A.C. 14:4-9.6. The section also includes provisions for inspection of the facility prior to interconnection in accordance with IEEE standard 1547, and an interconnection agreement between the EDC and the applicant. Finally, this section allows resubmittal of the application under the standard review procedure if the application is denied under the expedited procedure.

14:4-9.9 Standard interconnection review

Proposed new N.J.A.C. 14:4-9.9 describes the types of customer-generator facilities that are to be reviewed under the standard interconnection procedure, the criteria that will be applied, and the application and review procedures. Standard review is to be used for all customer-generator facilities that do not qualify for simplified or expedited interconnection review. The customer-generator facility need not be certified. Standard review involves studies of the impact of the customer-generator facility on the electric distribution system, and may in some cases involve a study to determine the types of customer-generator facilities that can safely be interconnected with the particular electric distribution system involved. The section also includes provisions for inspection of the facility prior to interconnection, and allows for an interconnection agreement between the EDC and the applicant.

14:4-9.10 Interconnection fees

Proposed new N.J.A.C. 14:4-9.10 sets forth the fees an EDC or supplier/provider may charge an applicant for interconnection and for interconnection review. No fee shall be charged for simplified interconnection review. Fees for expedited and standard review are limited by provisions at proposed N.J.A.C. 14:4-9.10(b) and (c).

14:4-9.11 Requirements after approval of an interconnection

Proposed N.J.A.C. 14:4-9.11 sets strict limits on the fees, tests, and requirements an EDC can impose on customer-generators after interconnection. However, it also provides an EDC the right to require certain tests of the customer-generator facility, to inspect customer-generator facilities, and to disconnect them if they do not comply with this subchapter.

Social Impact

The proposed amendments will have a positive social impact. These rules are one component of Governor McGreevey's initiative to increase development and use of renewable energy technologies in New Jersey. The proposed amendments will encourage more New Jersey electric customers to install and operate facilities for clean, distributed energy generation. By focusing on renewable generation that is located at a customer's premises, not only is there a greater use of renewable energy, but grid reliability, diversity are improved by the decentralization of energy generation. This will contribute to local and national energy independence and all of its attendant social benefits.

The proposed new provisions that provide for customer-generators to obtain renewable energy certificates or RECs based on their generation will add another incentive to increase clean distributed energy generation, and will also help to nurture the growing market for renewable energy.

Economic Impact

The proposed amendments to subchapter 9 will have a positive economic impact. The amendments will result in an increase in customers for small businesses that design and install net metering equipment, and some cost savings stemming from the standardization of interconnection review consistent with national trends. The proposed net metering amendments may have a slight negative economic impact on EDCs during periods when rates are frozen or between rate cases. After the adjustment for lowered contribution to fixed costs is incorporated into a rate case, the net metering itself will have no impact on EDCs.

The existing rules provide for an interconnection application fee of up to \$100, while the proposed amendments set application fees based on the size of the customer-generator facility. This allows for a wider range of fees, which are more tailored to the actual cost of the review procedure involved. Regarding study costs, the amendments will lower costs to EDCs as well as customer-generators by simplifying and systematizing the review process. The proposed amendments more clearly define the substance and procedures that must be covered in a review of an interconnection application. This will substantially reduce the possibility of unnecessary studies, and of unexpected costs or complications during the review process. If studies are needed, in most cases the costs under the proposed rules would be roughly equivalent to those under the existing rules. While it is possible that a very complex study could cost more under the proposed amendments, this fairly reflects the actual costs of such studies. Finally, to the extent the proposed amendments have economic impacts on an EDC, this can be considered by the Board during rate making proceedings for the EDC.

Federal Standards Statement

Executive Order No. 27 (1994) and N.J.S.A. 52:14B-1 et seq. require State agencies that adopt, readopt or amend State regulations that exceed any Federal standards or requirements to include in the rulemaking document a Federal Standards Analysis. N.J.A.C. 14:4-9 is not promulgated under the authority of, or in order to implement, comply with or participate in any program established under Federal law or under a State statute that incorporate or refers to Federal law, Federal standards, or Federal requirements. Accordingly, Executive Order No. 27 (1994) and N.J.S.A. 52:14B-1 et seq. do not require a Federal Standards Analysis for these proposed amendments.

Jobs Impact

The Board does not anticipate that these proposed amendments will have a significant impact on jobs in New Jersey. To the extent that the proposed amendments stimulate construction of more renewable energy generation in New Jersey, this would increase jobs for the designers, builders, and installers of renewable energy equipment. EDCs may require slightly more staff to review interconnection applications, but due to the standardization and simplification of interconnection reviews, this should be minimal.

Agriculture Industry Impact

The Board does not anticipate that the proposed amendments will have any impact on the agriculture industry in New Jersey, except one possible indirect impact. Since farms often require energy in more remote areas, small alternative energy technology is especially useful to those in the agriculture industry. For example, a farmer may need to power a well pump to supply drinking water for livestock located in a remote pasture away from existing electric lines. Thus, by encouraging the proliferation of small alternative energy systems, the amendments could cause an overall improvement in the

availability and price of alternative energy equipment, which could ultimately benefit farmers who need remote sources of energy.

Regulatory Flexibility Statement

The proposed amendments to subchapter 9 will impose minimal recordkeeping, reporting or other compliance requirements on small businesses. A small business, as defined in the New Jersey Regulatory Flexibility Act, N.J.S.A. 52:14B-16 et seq., is a business that has fewer than 100 employees.

There are three types of businesses to which these rules apply – EDCs, small commercial customer-generators that wish to net meter; and the consultants, contractors, and manufacturers that design, build and install the equipment needed for net metering. None of the EDCs are small businesses. The Board estimates that approximately 25 to 50 small commercial customer-generators will apply for interconnection and net metering each year, and the majority of these are likely to be small businesses. In addition, there are approximately 100 consultants, contractors, and manufacturers in New Jersey that design, supply, and install net metering equipment, all of which are small businesses.

The proposed amendments are likely to result in a reduction in compliance requirements that apply to both of the above-described types of small businesses. By more clearly defining the interconnection application review procedures, the amendments will reduce the universe of requirements that may be imposed upon applicants for interconnection. This will reduce compliance requirements for small businesses seeking to interconnect, it may reduce the need for a small business to retain professional help to interconnect, and it will reduce compliance requirements for small business contractors hired to assist applicants for interconnection. Furthermore, for small businesses that do business related to net metering in other states as well as New Jersey, the fact that the proposed interconnection procedures are more in line with regional and national trends will also reduce the burden of compliance with the rules. The proposed amendments will not require that small businesses incur capital costs.

Finally, because the proposed amendments to subchapter 9 are likely to encourage more people to net meter, they are likely to result in an increase in customers for small business consultants, contractors, and manufacturers of net metering equipment.

Smart Growth Impact

The Board anticipates that the proposed amendments will have no impact on either the achievement of smart growth or the implementation of the State Development and Redevelopment Plan. The State Plan is intended to "provide a coordinated, integrated and comprehensive plan for the growth, development, renewal and conservation of the State and its regions" and to "identify areas for growth, agriculture, open space conservation and other appropriate designations." N.J.S.A. 52:18A-199a. Smart growth is based on the concepts of focusing new growth into redevelopment of older urban and suburban areas, protecting existing open space, conserving natural resources, increasing transportation options and transit availability, reducing automobile

traffic and dependency, stabilizing property taxes, and providing affordable housing." These rules apply uniformly Statewide and the Board does not expect that they will affect the location of future development. Therefore, the proposed amendments will not impact smart growth or the State Plan.

Full text of the proposed amendments follows.

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

[INTERIM NET METERING, SAFETY AND POWER QUALITY STANDARDS WIND AND SOLAR PHOTOVOLTAIC SYSTEMS]

14:4-9.1 Scope

[These rules govern net metering standards for] This subchapter sets forth 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. This subchapter also sets forth requirements for the interconnection of customer-generator facilities 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.

["Act" means the "Electric Discount and Energy Competition Act" (N.J.S.A. 48:3-49 et seq.).]

"Annualized period" means a period of 12 consecutive monthly billing periods [beginning with the first customer billing period in which net metering becomes applicable] . 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. [means electric generation service that is provided to any customer that has not chosen an alternative electric power supplier, whether or not the customer has received offers as to competitive supply options, including, but not limited to, any customer that cannot obtain such service from an electric power supplier for any reason, including non-payment for services. Basic generation service is not a competitive service and shall be fully regulated by the Board.]

...

"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, using [wind or solar photovoltaic system] a system that generates class I renewable energy.

"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 [this State] 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 generation service" means the provision of retail electric energy and capacity which is generated off site from the location at which the consumption of such electric energy and capacity is metered for retail billing purposes, including agreements and arrangements thereto.]

"Electric power supplier" [means a person or entity that is duly licensed pursuant to the provisions of the Act to offer and to assume the contractual and legal responsibility to provide electric generation service to retail customers, including load serving entities, marketers and brokers that offer or provide electric generation service to retail customers. The term excludes an electric public utility that provides electric generation

service only as basic generation service pursuant to N.J.S.A. 48:3-57] 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 [that the customer-generator is billed according to the difference between the amount of electricity supplied by the electric power supplier or basic generation service provider in a given billing period and the electricity delivered from the customers' side of the meter using wind or solar photovoltaic systems, with customer generation in excess of electricity supplied credited over an annualized period.] 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.

["Network distribution system" means an electric delivery system characterized by multiple uni-directional sub-transmission or primary-voltage feeders that are transformed and converge to a secondary service voltage level, where secondary conductors are commonly interconnected via automated secondary switches. The vast majority of network distribution systems consist entirely of underground construction and are primarily in urban areas.

"Non-discriminatory rates" means rates that are identical, with respect to rate structure, retail rate components, and any monthly charges, to the rates the customer-generator would have been charged if not a customer-generator.]

"MW" means megawatts, a unit of power representing 1,000,000 watts. A MW 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. 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 [standards] general provisions

(a) All Electric Distribution Companies (EDCs) and [electric power suppliers and basic generation service providers] supplier/providers, as defined at N.J.A.C. 14:4-9.2, shall offer net metering [at non-discriminatory rates] to their residential and small commercial customers, as defined at N.J.A.C. 14:4-9.2, that generate electricity, on the customer's side of the meter, using [a wind or solar photovoltaic system] class I renewable energy, provided that the generating capacity of the customer-generator's facility does not exceed 2 MW.

(b) [A standard contract or] The EDC shall develop a tariff providing for net metering [shall be developed and made available by each electric power supplier and basic generation service provider] . Each supplier/provider and EDC shall make net metering available to eligible customer-generators on a first-come, first-served basis.

[(c) Electric distribution companies shall be permitted to install a second meter, at their expense and with the customer's permission, to measure gross kilowatt hours (Kwh) delivered from customer-generators.

1. If such a meter is installed, it shall be an electronic meter capable of hourly readings. If such a meter is installed, the utility shall supply its readings to the customer upon request, up to twice per calendar year. These provisions notwithstanding, a single meter shall be sufficient for any residential or small commercial customer to take advantage of net metering under these standards.

(d) When the amount of electricity delivered by the customer-generator plus any kilowatt hour credits held over from previous billing periods exceed the electricity supplied by the electric power supplier and/or EDC or basic generation service provider, the electric power supplier and/or EDC or basic generation service provider, as the case may be, shall credit the customer-generator for the excess kilowatt hours until the end of the annualized period at which point the customer-generator will be compensated for any remaining credits. at the electric supplier's or basic generation service provider's avoided cost of wholesale power.

1. When a customer-generator switches electric suppliers, the electric power supplier or basic generation service provider with whom service is terminating shall treat the end of the service period as if it were the end of the annualized period.

(e) Net metering will be reviewed by the Board and may cease to be offered, upon Board authorization, whenever the total rated generating capacity owned and operated by net metering customer-generators Statewide equals 0.1 percent of the State's peak electricity demand or the annual aggregate financial impact to electric power suppliers and basic generation service providers Statewide, as determined by the Board, exceeds \$2,000,000, whichever occurs first.

1. The Board will conduct a public hearing and provide opportunity for public comment prior to ceasing any net metering offering(s).

(f) Each basic generation service provider and electric power supplier shall submit an annual report to the Board indicating the rated generating capacity owned and operated by its net metering customer-generators, the net Kwh received from customer-generators and the aggregate value of net metering credits provided during the previous 12 months. Annual reports shall be due October 31st of each year for the period ending September 30th of each year.

1. For purposes of this section, "aggregate value of net metering credits" means the total amount of energy delivered by customer-generators.

(g) Customer-generators will be eligible for net metering up to a maximum allowable capacity per customer-generator of, but not to exceed the current peak electric needs of its own residential or small commercial facility.]

(c) If, in a given monthly billing period, a customer-generator supplies more electricity to the electric distribution system than the EDC or supplier/provider delivers to the customer-generator, the EDC and supplier/provider shall credit the customer-generator for the excess. To do this, the EDC or supplier/provider shall reduce the customer-generator's bill for the next monthly billing period to compensate for the excess electricity from the customer-generator in the previous billing period.

(d) The EDC and supplier/provider shall carry over credit earned under (c) above from monthly billing period to monthly billing period, and the credit shall accumulate until the end of the annualized period, as defined at N.J.A.C. 14:4-9.2.

(e) At the end of each annualized period, the supplier/provider shall compensate the customer-generator for any excess kilowatt hours generated, at the electric power supplier's or basic generation service provider's avoided cost of wholesale power, as defined at N.J.A.C. 14:4-9.2.

(f) If a customer-generator switches electric suppliers, the electric power supplier or basic generation service provider with whom service is terminating shall treat the end of the service period as if it were the end of the annualized period.

(g) Each supplier/provider or EDC shall submit an annual net metering report to the Board. The report shall be submitted by October 31st of each year, and shall include the following information for the one-year period ending September 30th of that year:

1. The total number of customer-generator facilities;
2. The total estimated rated generating capacity of its net metering customer-generators;
3. The total estimated net kilowatt-hours received from customer-generators; and
4. The total estimated amount of energy produced by the customer-generators.

(h) A customer-generator owns the renewable attributes of the electricity it generates, and may apply to the Board in accordance with N.J.A.C. 14:4-8.9 for issuance of Renewable Energy Certificates, or RECs, based on solar electric generation. Once the PJM's Generation Attribute Tracking System (GATS) is operational, a customer-

generator may apply to PJM or its designee for issuance of class I renewable energy RECs. If RECs are issued, the customer-generator may itself trade or sell the RECs, or may trade or sell the RECs through an aggregator, or through a trading program authorized by the Board.

(i) A supplier/provider or EDC shall provide net metering at non-discriminatory rates that are identical, with respect to rate structure, retail rate components, and any monthly charges, to the rates that a customer-generator would be charged if not a customer-generator, except that a supplier/provider or EDC may use a special load profile for the customer-generator, which incorporates the customer-generator's real time generation, provided the special load profile is approved by the Board.

(j) A supplier/provider or EDC shall not charge a customer-generator any fee or charge; or require additional equipment, insurance or any other requirement not specifically authorized under this subchapter; unless the same would be required of other customers that are not customer-generators.

14:4-9.4 Meters and metering

(a) A customer-generator facility used for net metering shall be equipped with metering equipment that can measure the flow of electricity in both directions at the same rate. This is typically accomplished through use of a single bi-directional meter.

(b) A customer-generator may choose to use an existing electric revenue meter if the following criteria are met:

1. The meter is capable of measuring the flow of electricity both into and out of the customer-generator's facility at the same rate;
2. The meter is accurate to within plus or minus 5 percent when measuring electricity flowing from the customer-generator facility to the electric distribution system.

(c) If the customer-generator's existing electric revenue meter does not meet the requirements at (b) above, the EDC shall install a new revenue meter for the customer-generator, at the company's expense. Any subsequent revenue meter change necessitated by the customer-generator, whether because of a decision to stop net metering or for any other reason, shall be paid for by the customer-generator.

(d) The electric distribution company shall not require more than one meter per customer-generator. However, an additional meter may be installed under either of the following circumstances:

1. The electric distribution company may install an additional meter at its own expense if the customer-generator consents; or
2. The customer-generator may request that the EDC install a meter, in addition to the revenue meter addressed in (c) above, at the customer-generator's expense. In such a case, the EDC shall charge the customer-generator no more than the actual cost of the meter and its installation.

14:4-9.5 General interconnection application provisions

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

1. Simplified – an EDC shall use this review procedure for 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. Simplified interconnection review procedures are set forth at N.J.A.C. 14:4-9.7;
2. Expedited – 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. Expedited interconnection review procedures are set forth at N.J.A.C. 14:4-9.8; and
3. Standard – 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 simplified or expedited interconnection review procedures. Standard 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.

(c) Upon request, the EDC shall meet with an applicant who qualifies for standard or expedited 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.

14:4-9.6 Certification of customer-generator facilities

(a) In order to qualify for the simplified and the expedited 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 N.J.A.C. 14:4-9.6(a).

(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 for certification.

(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 for certification.

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

14:4-9.7 Simplified interconnection review

(a) Each EDC shall adopt a simplified interconnection review procedure. The EDC shall use the simplified review procedure 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 simplified 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 simplified 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.

(i) Within three business days after receiving an application for simplified 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 (n) 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 simplified interconnection agreement unless:
 - i. The EDC does not require an interconnection agreement for customer-generator facilities that qualify for simplified interconnection review; or
 - ii. The applicant has already submitted such an agreement with its application for interconnection, in accordance with (h) above.

(l) 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.

(m) 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 an applicant in writing or by e-mail whether the interconnection is approved or denied within 20 business days after the receipt of an application under simplified interconnection procedures, the interconnection shall be deemed approved.

(o) If an application for simplified 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 expedited or standard interconnection review procedure, as appropriate.

14:4-9.8 Expedited interconnection review

(a) Each EDC shall adopt an expedited interconnection review procedure. The EDC shall use the expedited 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 expedited 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 expedited 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 expedited 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 ten 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 expedited interconnection procedures.

(p) An applicant that receives an interconnection agreement under (p)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.

(t) If an application for expedited 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 standard interconnection review procedure.

14:4-9.9 Standard interconnection review

(a) Each EDC shall adopt a standard interconnection review procedure. The EDC shall use the standard 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 simplified or expedited 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.

(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 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 standard 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 simplified interconnection review. However, if an application for simplified interconnection review is denied because it does not meet the requirements for simplified interconnection review, and the applicant resubmits the application under another review procedure in accordance with N.J.A.C. 14:4-9.7(o), the EDC may impose a fee for the resubmitted application, consistent with this section.

(b) For an expedited 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(p)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 standard 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 simplified or expedited 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 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; or
2. Any manufacturer-recommended testing.

(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.

Editor's note: while the proper New Jersey Register format is to use brackets without strikethrough to indicate any text proposed for deletion, the following text is shown in this courtesy copy with strikethrough formatting in addition to brackets. This is intended solely to assist the reader by clearly identifying text proposed for deletion.

~~14:4-9.4 Safety and power quality standards for customer-generator facilities~~

~~(a) Interconnection costs shall be paid by the customer-generator and shall be in addition to any line extension charge required to meet service requirements.~~

~~(b) Customer-generators shall bear the cost of meeting all applicable safety and power quality standards approved by the National Electrical Code, Institute of Electrical and Electronics Engineers, and accredited testing institutions, such as Underwriters Laboratories.~~

~~(c) Customer-generator facilities rated up to and including 10 kilowatts (Kw) except for those facilities served by network distribution systems, shall comply with all applicable safety and power quality standards approved by the National Electrical Code, Institute of Electrical and Electronics Engineers, and accredited testing institutions, such as Underwriters Laboratories, and specifically IEEE Standard 929-2000.~~

~~(d) Customer-generator facilities rated above 10 kW and not more than 100 Kilowatt, and those rated 10 kW and less and served by network distribution systems, shall comply with all applicable safety and power quality standards approved by the National Electrical Code, Institute of Electrical and Electronics Engineers, accredited testing laboratories, such as Underwriters Laboratories, and electric distribution company tariffs, as approved by the Board.~~

~~(e) If a customer-generator uses an inverter that complies with IEEE Standard Number 929 (IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems) and is on the list of inverters published by Underwriters Laboratories in UL 1741, the inverter shall be presumed to be acceptable and the electric distribution company shall not require additional testing for the inverter. IEEE standards can be obtained at <http://standards.ieee.org>. Information on UL 1741 can be found at www.ul.com.~~

14:4-9.5 Application for a net metering interconnection

~~(a) This section sets forth the standards and procedures through which a customer-generator, as defined at N.J.A.C. 14:4-9.2, may apply for permission to connect to an electric distribution company's electric delivery system for the purpose of net metering.~~

~~(b) An application for interconnection shall be submitted to the electric distribution company on the Interconnection application/Agreement For Net Metering Systems form provided on the Board's website at www.bpu.state.nj.us, or on paper by contacting the Board at 973-648-3717. The application form may also be obtained from the EDC. 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.~~

~~(c) The electric distribution company may charge a customer-generator an application fee, but is not required to do so. If an application fee is charged, the fee shall not exceed \$100.00.~~

~~(d) An electric distribution company shall respond to a properly completed interconnection application within 30 days after the application is submitted. The electric distribution company shall provide the customer-generator with either of the following responses:~~

- ~~1. Approval of the interconnection. An approval shall authorize the customer-generator to connect their equipment to that of the electric distribution company and to begin net metering provided that:
 - ~~i. The interconnection has been approved by the appropriate electrical code official; and~~
 - ~~ii. All other requirements of this subchapter have been met; or~~~~
- ~~2. Denial of the application. A denial shall include:
 - ~~i. An explanation of the reason(s) for the denial; and~~
 - ~~ii. A list of additional information and/or modifications to the customer-generator's facility, which would be required in order to obtain an approval. For example, the denial might require more detailed information on an inverter or other piece of equipment, or an interconnection study to ensure that the power generated by the customer-generator could be accommodated by the electric distribution company's system.~~~~

~~(e) Upon review of an interconnection application, the electric distribution company may determine that it needs to conduct an interconnection study in order to complete its review of the application. If a customer-generator's facility complies with N.J.A.C. 14:4-9.4, the electric distribution company may not charge the customer-generator for an interconnection study unless the interconnection application meets one or more of the following criteria:~~

- ~~1. The application is for connection to a single-phase radial feeder, and the combined capacity of all generation equipment connected to that feeder by a source other than the utility will exceed 50 kilowatts if the connection is approved;~~
- ~~2. The application is for connection to a three-phase radial feeder, and the combined capacity of all generation equipment connected to that feeder by a source other than the utility will exceed 150 kilowatts if the connection is approved; or~~
- ~~3. The application is for connection to a network distribution system, as defined at N.J.A.C. 14:4-9.2, and:
 - ~~i. The capacity of the customer-generator's facility is greater than one hundred kilowatts; or~~
 - ~~ii. The combined capacity of all generation equipment connected to that network distribution system by a source other than the utility will exceed 50~~~~

~~percent of the minimum load on the network bus to which the customer-generator facility is connected, if the connection is approved.~~

~~(f) If an electric distribution company determines in accordance with (e) above that an interconnection study is necessary, the electric distribution company may charge the customer-generator for the cost of performing an interconnection study. The amount of the fee shall be determined as follows:~~

- ~~1. Determine the actual number of days spent by the electric distribution company in performing the interconnection study. If the days actually spent exceed the maximum number allowed in Table A below, reduce the number of days to the applicable maximum allowed under Table A; and~~
- ~~2. Multiply the number of days determined under (f)1 above by \$800. The resulting amount is the fee for the interconnection study.~~

TABLE A

Maximum Number of Days For An Interconnection Study

Customer-generator facility type	Electric delivery system to which customer-generator will connect	Total aggregate generation capacity connected to electric delivery system by non-EDC sources	Maximum number of days
Single-phase	Single-phase feeder	More than 50 kw but no more than 100 kw	3 person-days
Single-phase or three-phase	three-phase feeder	More than 150 kw but no more than 300 kw	3 person-days
Any facility	Network distribution system	Up to 100 kw	5 person-days
Any facility	Any system	Greater than the maximums above²	Actual time spent³

~~(g) An electric distribution company that charges a fee for an interconnection study shall provide the customer-generator with a bill that includes a clear explanation of all charges. In addition, if the interconnection study fee is calculated using actual time spent under Table A above, the electric distribution company shall provide to the customer-generator, prior to the start of the interconnection study, an estimate of the~~

² ~~[In accordance with (e) above, a customer-generator facility that generates less than the minimums above would generally not require an interconnection study.]~~

³ ~~[If the interconnection study fee is calculated using actual time spent, the electric distribution company shall provide a fee estimate in accordance with (g) above.]~~

~~number of days that will be needed to complete the interconnection study, and an estimate of the total interconnection study fee.~~

~~(h) An electric distribution company shall not charge a customer-generator any fee or other charge for connecting to the electric distribution company's equipment for the purposes of net metering, except for the application fee provided for at (c) above and the interconnection study fee provided for at (f) above.~~

~~(i) If a customer-generator's facility complies with all applicable standards in N.J.A.C. 14:4-9.4(c), (d) and (e), the facility shall be presumed to comply with the technical requirements of this subchapter. In such a case, the electric distribution company shall not require a customer-generator to install additional controls, perform or pay for additional tests, or purchase additional liability insurance in order to obtain approval to connect for net metering purposes.~~

~~(j) An electric distribution company shall not approve an application for interconnection to a network distribution system if the customer-generator's facility has a real potential to export power to the common network bus. For a customer-generator facility to be installed in a network area, the maximum capacity of the customer-generator facility must be no more than the lesser of the following:~~

- ~~1. One hundred kW; or~~
- ~~2. Fifty percent of the minimum load on the network bus to which the customer-generator's facility will be connected. For a solar photovoltaic customer-generator facility, this 50% minimum shall be determined as a function of the minimum load occurring during an off-peak daylight period.~~

~~(k) Once a net metering interconnection has been approved under this subchapter, the electric distribution company shall not require a customer-generator to test 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. A log shall be kept of these tests; and~~
- ~~2. Any manufacturer-recommended testing.~~

~~(l) An electric distribution company shall have the right to inspect a customer-generator's facility both before and after interconnection approval is granted, at reasonable hours and with reasonable prior notice to the customer-generator. If the electric distribution company discovers a problem with the customer-generator's facility, the electric distribution company may require any actions necessary to ensure that the customer-generator's facility complies with this subchapter.]~~