MADRI MODEL SMALL GENERATOR INTERCONNECTION PROCEDURES

November 22, 2005

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Preamble

The MADRI Steering Committee welcomes the efforts of its Interconnection Subgroup[1] to develop, through a consensus stakeholder process, Model Small Generator Interconnection Procedures for the MADRI region. MADRI's Steering Committee has approved this document as a resource for commissions developing interconnection procedures for small generators. We view the effort involved in producing the MADRI Interconnection Model Procedures as an opportunity to foster consistency in small generator interconnection rules and practices among the five MADRI jurisdictions.[2]

The Mid-Atlantic Demand Resource Initiative (MADRI) is a collaborative process of state and federal utility, energy and environmental regulators, electric distribution companies, distributed generation developers and owners, demand response companies, PJM and other interested stakeholders. The MADRI process is overseen by the state regulatory commissions for the MADRI jurisdictions through the MADRI Steering Committee.

It is a founding principle of the MADRI process that distributed energy resources (DER), including demand response (DR), energy efficiency and distributed generation (DG), have the potential to be a significant and useful resource in the electric power system of the Mid-Atlantic States and beyond. There is consensus within the MADRI Steering Committee and the Interconnection Subgroup that in order to realize this potential for DG, owners and developers should not have to face a process that demands excessive time or resources. The model procedures should facilitate the development and implementation of DG systems within MADRI jurisdictions. The certainty that routine and clear technical processes provide should create real benefits across the MADRI region.

Just as DG owners and developers of DG should not face unnecessary barriers, operators of distribution systems should not compromise system reliability or safety while adapting their operating and management practices to promote, advance and enable DG. The MADRI Model Small Generator Interconnection

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[1]The Interconnection Subgroup included state utility regulators, distributive generation suppliers and developers, electric distribution companies, state energy and environmental regulators, federal agencies, PJM and other interested stakeholders. The group also received guidance and facilitation by the U.S. Department of Energy, the National Renewable Energy Laboratory and the Regulatory Assistance Project.

[2]Delaware, District of Columbia, Maryland, New Jersey, and Pennsylvania.

Procedures seek to promote, advance and enable DG while preserving system safety and reliability.

While standardization and consistency are important goals, it is also important that each commission adopt interconnection procedures that are appropriate for its jurisdiction. The MADRI process is not a rulemaking process; nor is it an adjudicatory process. Rather, it is a technical and advisory group to develop the appropriate tools for use by regulators, developers, owners and utilities. The MADRI Steering Committee, therefore, welcomes both progress on consensus in the MADRI Model Small Generator Interconnection Procedures and the explanations and alternative language on points where consensus was not achieved. We expect that commissions, in establishing individual interconnection procedures, will balance the desirability of regional consistency within the MADRI jurisdictions with state-specific resources and needs. The MADRI Model Small Generator Interconnection Procedures should help in the rulemaking process by providing states with model procedures as well as options for addressing points of contention. We also note that while consensus was not achieved in all areas, the document produced by the subgroup did break new ground in several new areas:

- Developing procedures for connecting to area networks.
- Defining the “certification” requirements required to receive expedited project review.
- Developing a procedure for expedited evaluation of proposed 10 kVA to 2 MVA facilities that do no export power.

The document deliberately does not prescribe levels for application fees or timeframes. However, the document does provide a comprehensive “upper bound” value for timeframes developed during the consensus process along with an Attachment that compares these values with the timeframes included in the New Jersey interconnection procedures, the FERC small generator interconnection standards and the NARUC small generator interconnection standards. In addition, the document suggests that a nominal application fee be part of the Application process and that application fees for larger systems (greater than 10 kW) be cost-based. Subgroup participant comments and alternatives regarding application fees from are included in the document. The MADRI Steering Committee believes that timeframes and Application Fees and their use and level are determinations appropriately made by individual jurisdictions based on their own circumstances and policies.

It is the MADRI Steering Committee’s vision that the utilities will plan for the use of DG strategically and look to manage these resources as part of an integrated system. In the long run, as regulatory barriers are removed, utilities may come to see DG as a resource for achieving system benefits. In the meantime, the MADRI Steering Committee fully supports efforts to accelerate reform of

distributed generation interconnection procedures consistent with the public interest. The MADRI Model Small Generator Interconnection Procedures developed by the Interconnection Subgroup are an important step in that direction.

1. Scope

The Standard Small Generator Interconnection Procedures set forth herein establish requirements for the interconnection of Small Generator Facilities with an Electric Nameplate Capacity rating of ten MVA or less operating in Parallel with an Electric Distribution Company, that at the date of the Interconnection Request are not required to execute an Interconnection Agreement with PJM Interconnection (PJM). However, nothing in these procedures shall prevent PJM from subsequently requiring an Interconnection Customer to enter into a separate Interconnection Agreement with PJM if the Small Generator Facility subsequently starts participating in a PJM market or otherwise falls under the scope of PJM Interconnection requirements.

Small Generator Facilities that are not designed to operate in Parallel are not subject to these procedures.

PA Small Generator Coalition/SEIA Comments: ***The intent of the MADRI Interconnection Working Group was to formulate regulations that could be used as a model by state utility commissions looking to establish distributed generation programs. We had hoped to formulate regulations that would build on the experiences of those states that have operating DG programs and provide a set of regulations that would be straightforward and "user-friendly." We understand many of the provisions in the MADRI procedures and standard form contracts are drawn from the FERC final rules. However, using the federal rules as a guide makes it more difficult and cumbersome to develop procedures and language suitable for state interconnection procedures and we believe the final draft reflects serious weakness because it is trying to apply federal concepts at the state level.***

We are concerned that the MADRI proposed regulation, in general, will not be easily understood by the regulated public, is overly prescriptive and actually complicates rather than simplifies the application and review process for small systems, particularly residential systems.

FirstEnergy ("FE") Comments: FE commends the work done to date on the MADRI Interconnection Procedure. This represents a major step forward relative to some of the procedures established by other jurisdictions. However, there are still a few areas that raise serious safety concerns, as well as other operational/procedural issues as noted. Many of the comments offered by FE were developed with and/or reviewed by other EDCs in the working group. FE & others believe they have negotiated in good faith in an attempt to reach reasonable compromises, which balance expediency and efficiency with safety and reliability and the best interests of their customers.

2. Definitions

When used with initial capitalization, the following terms shall have the meanings specified or referred to below. Terms used in this document with initial capitalization that are not defined below shall have the meanings specified in the section in which they are used.

Adverse System Impact shall mean the negative effects due to technical or operational limits on conductors or equipment being exceeded that may compromise the safety and reliability of the Electric Distribution System.

PPL Electric Utilities and Allegheny Power Comments: ***Allegheny Power and PPL EU recommends re-instating the language in the Definition of Affected System as it appears in the FERC SGIP. We also recommend re-instating language in the document and agreements as it relates to Affected System(s). There may be interconnected generating units up to the limit of this procedure (10 MVA) that would need to use this definition and the provisions contained in the SGIP language of Affected System(s):***

Suggested PPL & AP Definition: ***"Affected System – An electric system other than the Transmission Provider's Transmission System that may be affected by the proposed interconnection."***

First Energy Comment: ***FE believes that this definition and subsequent references to it were inappropriately removed from previous drafts of the document. There will likely be situations where the installation of a customer may likely have an impact on a neighboring ECD, particularly for Level 2 and Level 3 installations. These situations are most probable where there are interconnections at the distribution level, such as with RECs and Municipal utilities. It is important that there be a mechanism to deal with such situations both for system study and accounting/cost allocation purposes.***

Suggested FE Definition: ***"Affected System -- shall mean an electric distribution system owned or operated by another EDC that may be affected by the proposed interconnection."***

Note: PPL, PA and FE offered comments that were not included on where the term Affected System, if adopted, could apply throughout the procedures. Some of the sections where the definition change could apply include: Definitions for Distribution Upgrades and Interconnection System Impact Study, and a new section 3.6.5.

Applicant – A person who has submitted an Interconnection Request to interconnect a Small Generator Facility to an EDC's Electric Distribution System, sometimes also referred to as the "Interconnection Customer".

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 "distribution secondary grid network" as stated in IEEE standard 1547 Section 4.1.4 (published July 2003), as amended and supplemented.

Business Day shall mean Monday through Friday, excluding Federal Holidays.

Calendar Day shall mean any day including Saturday, Sunday or a Federal Holiday.

Certificate of Completion means the certificate in the form provided in Appendix 6.

Certified means the equipment that satisfies the requirements of Appendix 9

Distribution Upgrades shall mean the required additions and modifications to the Electric Distribution Company's Electric Distribution System at or beyond the Point of Interconnection. Distribution Upgrades do not include Interconnection Facilities.

Electric Nameplate Capacity means the net maximum or net instantaneous peak electric output capability measured in volt-amps of a Small Generator Facility as designated by the manufacturer.

Electric Distribution Company or **EDC** means the electric utility entity that owns the Electric Distribution System.

Electric Distribution System means the facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries from interchanges with higher voltage transmission networks that transport bulk power over longer distances. The voltage levels at which Electric Distribution Systems operate differ among areas but generally carry less than 69 kilovolts of electricity. Electric Distribution System has the same meaning as the term Area EPS defined in 3.1.6.1 of IEEE 1547.

Fault Current means the electrical current that flows through a circuit during an electrical fault condition. A fault condition occurs when one or more electrical conductors contact ground and/or each other. Types of faults include phase 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.

IEEE 1547 means, the most current official published version of IEEE Std 1547 (2003) "Standard for Interconnecting Distributed Resources with Electric Power Systems" at the time the Interconnection Request is submitted.

IEEE 1547.1 means the most current official published version of IEEE Std 1547.1 (2005) “Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems” at the time the Interconnection Request is submitted.

Interconnection Agreement means an agreement between an Interconnection Customer and an Electric Distribution Company, which in addition to these procedures governs the connection of the Small Generator Facility to the Electric Distribution System, as well as the ongoing operation of the Small Generator Facility after it is connected to the system.-

Interconnection Customer means any entity, including the Electric Distribution Company, that proposes to interconnect a Small Generator Facility to an Electric Distribution System.

Interconnection Equipment means a group of components or integrated system connecting an electric generator with an electric distribution system that includes all interface equipment including switchgear, protective devices, inverters, or other interface devices. Interconnection Equipment may be installed as part of an integrated equipment package that includes a generator or other electric source.

Interconnection Facilities – Any facilities and equipment required by the EDC to interconnect the Small Generator Facility and the Interconnection Customer’s Interconnection Equipment. Collectively, Interconnection Facilities include all facilities and equipment between the Small Generator Facility and the Point of Common Coupling, including any modification, additions or Distribution Upgrades that are necessary to physically and electrically interconnect the Small Generator Facility to the EDC’s Electric Distribution System. Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades.

Interconnection Facilities Study shall mean a study conducted by the Electric Distribution Company or a third party consultant for the Interconnection Customer to determine a list of facilities (including Electric Distribution Company’s Interconnection Facilities and required Distribution Upgrades to the Electric Distribution System as identified in the Interconnection System Impact Study), the cost of those facilities, and the time required to interconnect the Small Generator Facility with the Electric Distribution Company’s Electric Distribution System. The scope of the study is defined in Section 6.6 below of the Standard Small Generator Interconnection Procedures.

Interconnection Facilities Study Agreement shall mean the form of agreement contained in Appendix 5.

Interconnection Feasibility Study shall mean a preliminary evaluation of the system impact and cost of interconnecting the Small Generator Facility to the Electric Distribution Company's Electric Distribution System, the scope of which is described in Section 6.4

Interconnection Feasibility Study Agreement shall mean the form of agreement contained in Appendix 3.

Interconnection Request shall mean an Interconnection Customer's request, in the form of Appendix 1 or 2 to interconnect a new Small Generator Facility, or to increase the capacity of, or operating characteristics of an existing Small Generator Facility that is interconnected with the Electric Distribution Company's Electric Distribution System.

Interconnection Study shall mean any of the following studies: the Interconnection Feasibility Study, the Interconnection System Impact Study, and the Interconnection Facilities Study.

Interconnection System Impact Study shall mean an engineering study that evaluates the impact of the proposed interconnection on the safety and reliability of Electric Distribution Company's Electric Distribution System. The study shall identify and detail the system impacts that would result if the Small Generator Facility were interconnected without project modifications or system modifications, focusing on the Adverse System Impacts identified in the Interconnection Feasibility Study, or to study potential impacts, including but not limited to those identified in the Scoping Meeting. The scope of the study is defined in Section 6.5 below.

Interconnection System Impact Study Agreement shall mean the form of agreement contained in Appendix 4.

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

kVA means one thousand volt-amps and is equivalent to one kW at unity power factor

Line Section means that portion of an EDC's distribution system connected to an Interconnection Customer, bounded by automatic sectionalizing devices or the end of the distribution line.

Minor Equipment Modification means minor changes to the proposed Small Generator Facility that do not have a material impact on safety or reliability of the Electric Distribution System.

PPL Electric Utilities: ***PPL has as a concern that the definition is open ended and requests that the following language be included at the end of the definition: "and is work that could be competed in one shift."***

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

MVA means one million volt-amps and is equivalent to one MW at unity power factor

Nationally Recognized Testing Laboratory or **NRTL** means a qualified private organization that meets the requirements of OSHA regulations. NRTLs perform independent safety testing and product certification. Each NRTL must meet the requirements as set forth by OSHA in the NRTL program. A listing of current NRTLs may be found at the OSHA web site http://www.osha.gov/dts/otpca/nrtl/.

Parallel Operation or **Parallel** occurs when a Small Generator Facility is connected electrically to the Electric Distribution System and the potential exists for electricity to flow from the Small Generator Facility to the Electric Distribution System. This may be contrasted with a stand-alone generator that operates isolated from the Electric Distribution System.

Party or Parties shall mean Electric Distribution Company, Interconnection Customer or any combination of the above.

Point of Common Coupling The point where the Customer's Interconnection Equipment connects to the Electric Distribution System at which harmonic limits or other operational characteristics (IEEE 1547 requirements) are applied

Point of Interconnection means the point where the Interconnection Equipment connect to the Electric Distribution Company's Electric Distribution System.

PJM Interconnection LLC or **PJM** means FERC approved regional transmission organization that operates the electric transmission system.

PJM Small Generator Technical Requirements and Standards means the most current version of PJM's interconnection technical requirements applicable to small generators10 MVA or smaller. A copy of these requirements, effective as of March 19, 2005 are provided in Appendix 8. These technical requirements are also available at www.pjm.com. ***Note: PJM is currently considering revisions to its current small generator technical requirements that would expand them to include small generators up to 10 MVA. These revisions are expected to be finalized on or before December 2005.***

Queue Position shall mean the order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests, that is established based upon the date and time of receipt of the valid Interconnection Request by the

Electric Distribution Company. An Interconnection Request shall not be deemed to be invalid by virtue of its being finally evaluated under different procedures than those under which it was originally considered, e.g. an Interconnection Request originally submitted as a Level 1 Interconnection Request but eventually evaluated under Level 2 procedures is still a valid interconnection request and is to be assigned a Queue Position based on the date of its original submission as a Level 1 Interconnection Request.

Scoping Meeting shall mean the meeting between representatives of the Interconnection Customer and the Electric Distribution Company conducted for the purpose of discussing alternative interconnection options, to exchange information including any Electric Distribution System data and earlier study evaluations that would be reasonably expected to impact such interconnection options, to analyze such information, and to determine the potential feasible Points of Interconnection.

Small Generator Facility means the equipment used by an Interconnection Customer to generate, or store electricity that operates in Parallel with the Electric Distribution System. A Small Generator Facility has an Electric Nameplate Capacity rating of 10 MVA or less and typically includes an electric generator, prime mover, and the Interconnection Equipment required to safely interconnect with the Electric Distribution System.

Spot Network has the same meaning as assigned to the term under IEEE Standard 1547 Section 4.1.4, (published July 2003), as amended and supplemented, which is incorporated herein by reference. IEEE standard 1547 can be obtained through the IEEE website at www.ieee.org. As of August, 2005 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.

Standard Small Generator Interconnection Agreement (SGIA) shall mean the form of Interconnection Agreement applicable to a Level 2, Level 3 or Level 3A Interconnection Request pertaining to a Small Generating Facility. A Standard Small Generator Interconnection Agreement is provided in Appendix 7.

Standard Small Generator Interconnection Procedures means the procedures set forth in this document.

UL 1741 means Underwriters Laboratories' standard " Inverters Converters, and Controllers for Use in Independent Power Systems" available at www.UL.com.

Witness Test means the EDC's interconnection installation evaluation required by IEEE 1547 Section 5.3 and the EDC's witnessing of the commissioning test required by IEEE 1547 Section 5.4. For interconnection equipment that has not been Certified, the Witness Test shall also include the witnessing by the EDC of

the on-site design tests as required by IEEE 1547 Section 5.1 and witnessing by the EDC of production tests required by IEEE 1547 Section 5.2. All tests witnessed by the EDC are to be performed in accordance with IEEE 1547.1

3. General Interconnection Provisions

3.1 Applicability. The interconnection procedures contained herein, shall apply to all Small Generator Facilities that satisfy the criteria in 3.1.1 – 3.1.3 below.

3.1.1. The Electric Nameplate Capacity of the Small Generator Facility is equal to or less than 10 MVA.

3.1.2. The Small Generator Facility is not subject to the interconnection requirements of PJM.

3.1.3. The Small Generator Facility is designed to operate in Parallel with the Electric Distribution System.

3.2. Interconnection Requests. Interconnection Customers seeking to interconnect a Small Generator Facility must submit an Interconnection Request to the EDC that owns the Electric Distribution System to which interconnection is sought. Interconnection Requests are to be made using one of two standardized forms. An Interconnection Request for inverter based Small Generator Facilities with an Electric Nameplate Capacity of 10 kVA or less shall use the form in Appendix 1. All Interconnection Requests for non-inverter based Small Generator Facilities and all other Small Generator Facilities with an Electric Nameplate Capacity greater than 10 kVA but less than or equal to 10 MVA shall use the form in Appendix 2. EDCs shall provide provisions for accepting Interconnection Requests electronically.

3.3. Fees. For Level 1, a “nominal” interconnection fee should be collected with all Interconnection Requests. The primary reason for these fees is to prevent frivolous applications and promote overall administrative efficiency. For Level 2 and 3 (including 3A), fees should be established based on the administrative costs EDC’s are likely to incur in processing Interconnection Requests. No consensus was reached on an appropriate level for fees and it was suggested that a final determination of fee levels should be left for individual states.

First Energy Comments: Interconnection Application Fees should be based on costs that the EDCs incur to process Interconnection Requests and administer the small generator interconnection procedures. This is not to imply that the relief should not be granted to the types of projects a State is attempting to encourage, however, such relief should not be part of an Interconnection Standards and procedures proceeding. These standards are applicable to all types of facilities regardless of fuel source or societal and environmental benefits.

If a State's position is to encourage the types of facilities such as those proposed in PA's Act 213, then any forgiveness of interconnection application costs should be addressed in a separate proceeding providing for the appropriate accounting mechanisms and timely recovery of these costs.

Even the simplest project applications take a minimum of between 2.5 and over 4 hours to process and evaluate if everything proceeds smoothly. Others can take many times that amount. It would be inappropriate to attempt to collect for all application processing costs in a standard fee. However, minimum fees should at least cover the minimum average costs. Other mechanisms can be established for externalities and fee relief where appropriate.

<u>Allegheny Power Comments:</u> Allegheny Power agrees that a fee should be collected with all Interconnection Requests. We also agree that the fee should be based on the costs the EDC would incur to conduct the work requested by the applicant. Allegheny Power is acceptable to a standard fee structure for Level 1, Level 2, and Level 3A interconnection, provided the fees cover the average costs to conduct the work requested for each of these typical sizes.

<u>PA Small Generator Coalition/SEIA Comments:</u>. What a utility considers "nominal: may not be so to an individual householder. We consider a small fee, no more than $35, as "nominal" for small systems. Fees of $100 could take months of distributed generation to pay off for such small systems. New Jersey's fee structure includes no fee for Level 1 (less than 10kW) interconnection requests, $50.00 plus $1 /kW of capacity for certified equipment up to 2MW and $100.00 plus $2.00/kW if not certified is calculate to reasonably compensate the utilities for their time.

We do not think people will submit frivolous applications as the electrical inspector must sign the application and it therefore is unlikely to be incomplete or frivolous. In addition, the recommendation with this proposal that specific instructions be provided to Applicants should diminish the likelihood of incomplete applications. Moreover it is more important that utilities have an accurate count of the number and location of potential systems than that they focus on the need to implement a fee system.

3.4. Interconnection Application Review Procedures. Each EDC shall review all Interconnection Requests based on the following four review procedures:

3.4.1.1. Level 1 Interconnection Review Procedures. An EDC shall use these review procedures, as more specifically set forth in

Section 4 below, for evaluation of all Interconnection Requests to connect inverter-based Small Generation Facilities that (1) have an Electric Nameplate Capacity of 10 kVA or less and, (2) the Customer Interconnection Equipment proposed for the Small Generator Facility is Certified.

3.4.1.2. Level 2 Interconnection Review Procedures. An EDC shall use these review procedures, as more specifically set forth in Section 5 below, for evaluating all Interconnection Requests to connect Small Generation Facilities where (1) the Small Generator Facility uses an inverter for interconnection and; (2) the Electric Nameplate Capacity rating is 2 MVA or less and; (3) the Customer Interconnection Equipment proposed for the Small Generator Facility is Certified or; (4) the Small Generator Facility was reviewed under Level 1 review procedures but not approved.

3.4.1.3. Level 3 Interconnection Review Procedures. With the exception of Section 3.4.1.4 below, an EDC shall use these review procedures, as more specifically set forth in 6 below, for evaluating all Interconnection Requests to connect Small Generation Facilities with an Electric Nameplate Capacity of 10 MVA or less, which do not qualify for either the Level 1 or Level 2 interconnection review procedures; or, have been reviewed under Level 1 or Level 2 review procedures but have not been approved for interconnection.

3.4.1.4. Level 3A Interconnection Review Procedures. Interconnection Customers that do not qualify for a Level 1 or a Level 2 review and do not export power beyond the Point of Interconnection may request, to be evaluated under Level 3A procedures which provide for a potentially expedited review process as set forth in Section 7.

PPL Electric Utilities: PPL thinks this should be the Point of Common Coupling instead of the Point of Interconnection. According to the definitions and the IEEE 1547, the PCC is where the requirements are to be met.

3.5. Technical Standard.

3.5.1. The technical standard to be used in evaluating all Interconnection Requests under Level 1, Level 2, Level 3 and Level 3A reviews, unless otherwise provided for in these procedures, is PJM's Small Generator Technical Requirements and Standards as those standards may be modified by PJM from time to time. The PJM Small Generator Technical Requirements and Standards, effective as of March 19, 2005, are provided in Appendix 8 and may also be found at www.PJM

PA Small Generator Coalition/SEIA Comments: ***The technical standard should be the IEEE 1547 which applies to the equipment to be used for interconnection.***

3.6. Other General Requirements

3.6.1. If the Interconnection Request is for a Small Generator Facility that includes multiple energy production devices at a site for which Interconnection Customer seeks a single Point of Interconnection, the Interconnection Request shall be evaluated on the basis of the aggregate Electric Nameplate Capacity of multiple devices.

3.6.2. If the Interconnection Request is for an increase in capacity for an existing Small Generator Facility, the Interconnection Request shall be evaluated on the basis of the new total Electric Nameplate Capacity of the Small Generator Facility.

3.6.3. The EDC shall maintain records of all Interconnection Requests received, the times required to complete Interconnection Request approvals and disapprovals, and justifications for the actions taken on the Interconnection Requests. The EDC shall keep such records on file for a minimum of three years. State record keeping requirements should be followed.

3.6.4. To assist a prospective Interconnection Customer, the EDC shall designate a contact person from whom information on the Interconnection Request and about the EDC's Electric Distribution System can be obtained through informal requests regarding a proposed project. Such information should include studies and other materials useful to an understanding of the feasibility of interconnecting a Small Generator Facility at a particular point on the EDC's Electric Distribution System, except to the extent providing such materials would violate security requirements or confidentiality agreements, or be contrary to law or state or federal regulations. The EDC shall comply with reasonable requests for access to or copies of such studies.

PA Small Generator Coalition/SEIA Comments: ***We think that the regulation should make clear that reasonable requests for access to or copies of studies includes providing information to the Interconnection Customer under a confidentiality agreement. Without such a provision, information that is used to deny an application can be withheld from the applicant based solely on a privacy or security claim***.

3.6.5. Once an Interconnection Request is deemed complete, any modification other than a Minor Equipment Modification to the proposed Small Generator Facility or Interconnection Equipment, or Minor Equipment Modification that would not affect the application of the screens in Levels 1, 2 or 3A, that is not agreed to in writing by the EDC, shall require submission of a new Interconnection Request.

3.6.6. If the Interconnection Customer is not currently a customer of the EDC, upon request from the EDC, it shall provide proof of site control evidenced by a property tax bill or deed or a lease agreement or other legally binding contract.

3.6.7. The EDC may propose to interconnect more than one Small Generator Facility at a single Point of Interconnection in order to minimize costs, and shall not unreasonably refuse a request to do so. However, an Interconnection Customer may elect to pay the entire cost of separate Interconnection Facilities.

3.6.8. Isolation Device. Unless otherwise prohibited by state regulation and if required by EDC operating practices, Small Generator Facilities shall be capable of being isolated from the Electric Distribution Company by means of a lockable, visible-break isolation device readily accessible by the Electric Distribution Company. Unless a readily accessible load break device is otherwise provided in the interconnection system, the isolation device shall be capable of interrupting load. The isolation device shall be installed, owned, and maintained by the owner of the Small Generator Facility and located between the Small Generator Facility and the Point of Interconnection. A draw-out type circuit breaker with the provision for padlocking at the draw-out position can be considered an isolation device for purposes of this requirement. Alternatively, the Interconnection Customer, at its option, may elect to provide the EDC access to an isolation device that is contained in a building or area that may be unoccupied and locked or not otherwise readily accessible to the EDC, by providing a lockbox capable of accepting a lock provided by the EDC that will provide ready access to the isolation device. Where a lockbox is required, the Interconnection Customer shall install the lockbox in a location that is readily accessible by the EDC and the Interconnection Customer shall affix a placard in a location acceptable to the EDC that provides clear instructions to its operating personnel on how to gain access to the isolation device.

<u>New Jersey Comments:</u> Designate existing Section 3.6.8 as Section 3.6.8.2 and add a new Section 3.6.8.1 as follows:

> ***For Level I systems that meet the National Electric Code requirements for isolation devices and when the isolation switch is not located outside the building so it is accessible to the EDC, if the customer choice to install an additional utility accessible isolation device, the EDC will credit the customer for the net cost of the additional isolation device upon approval of the location of the optional isolation device under the EDC's net metering tariff.***

<u>PA Small Generator Coalition/SEIA Comments:</u> Adding a redundant utility-accessible isolation device is unnecessary because the inverter already meets the IEEE 1547 standard for disconnecting from the grid when there is a power outage and is designed to always disconnect. This renders the inverter-based distributed generator completely harmless to the utility line worker and is substantially different from small backup generators that can still back feed onto the grid under these conditions. Installing an isolation device adds unnecessary cost (average $300 to $600) , time (average 3 to 6 hours) and resources (sometimes requiring trenching, drilling, etc.). In additional the National Electric Code requires multiple manual disconnect devices which can be used to disconnect any small generator. As a final fail-safe, removal of a revenue meter is an absolute disconnection.

4. Level 1 Interconnection Review

4.1. Each EDC shall adopt a Level 1 interconnection review procedure set forth in 4.4 below. The EDC shall use the Level 1 review procedure only for an Interconnection Request that meets all of the criteria set forth in 4.1.1-4.1.3 below:

4.1.1. The Small Generator Facility is inverter-based; and
4.1.2. The Small Generator Facility has an Electric Nameplate Capacity of 10 kVA or less; and
4.1.3. The Interconnection Equipment proposed for the Small Generator Facility is Certified

4.2. For a Small Generator Facility described in 4.1 above, the EDC shall approve interconnection under the Level 1 interconnection review procedure set forth in 4.4 below if all of the Level 1 screening criteria set forth in 4.3 below are met. An EDC shall not impose additional requirements not specifically authorized under this Section 4.

4.3. Level 1 Screening Criteria

4.3.1. For interconnection of a proposed Small Generator Facility to a radial distribution circuit, the aggregated generation, including the proposed Small Generator Facility, on the circuit will not exceed 15% of the Line Section annual peak load as most recently measured at the sub station.

4.3.2. For interconnection of a proposed Small Generator Facility to the load side of Spot Network protectors, the proposed Small Generator Facility must utilize an inverter-based equipment package and, the Customer Interconnection Equipment proposed for the Small Generator Facility must be Certified and the aggregated other generation must not exceed the smaller of 5% of a Spot Network's maximum load or 50 kVA. (See 7.3 for criteria and procedures for interconnecting to an Area Network).

PA Small Generator Coalition/SEIA Comments: ***There is no reason why the aggregated other inverter-based generation cannot exceed 50 kVA. The 5% limitation in and of itself will provide sufficient protection for the spot network protectors. 5% of peak load loosely translates to 15% of minimum load. Spot network protectors will not be affected unless the small generators exceed 100% of minimum load so the 15% limitations provides a safety margin of 666% (100%/15%). This is sufficiently conservative not to require an additional 50kW limitation for which no technical justification has been provided.***

4.3.3. If the proposed Small Generator Facility is to be interconnected on a single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed Small Generator Facility, will not exceed 20 kVA.

4.3.4. If the proposed Small Generator Facility is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, its addition shall not create an imbalance between the two sides of the 240 volt service of more than 20% of the nameplate rating of the service transformer.

4.3.5. No construction of facilities by the EDC on its own system will be required to accommodate the Small Generator Facility.

4.4. Level 1 Interconnection Review Procedure

4.4.1. The Interconnection Customer submits the Level 1 Interconnection Request provided in Appendix 1 filled out properly and completely and with appropriate fees if required.

4.4.2. The EDC will within ten (10) business days after receipt of the application, by the designated addressee, inform the Applicant that the Interconnection Request is either complete or incomplete and what materials are missing. In the event the Applicant does not

receive such notification in the appropriate time frame, the Applicant should contact the EDC as quickly as possible to determine the status of the application and to verify that the EDC has received the application. (See Appendix 10 for timeline comparison)

4.4.2.1. In the event the EDC does not have a record of receipt of the Interconnection Request and/or cannot locate same, the Applicant will provide the EDC with an additional copy of the Interconnection Request. If the Applicant can demonstrate that the original Interconnection Request was delivered to the EDC, the EDC shall be required to forgo the initial 10-day response period and expedite their review to complete their evaluation of the Interconnection Request within 15 days receipt of the Applicant's re-submittal.

4.4.3. The EDC verifies Small Generator Facility equipment can be interconnected safely and reliably using Level 1 screens set forth in 4.3. This can take up to 15 Business Days. (See Appendix 10 for timeline comparison)

4.4.4. Upon providing reasonable notice within ten (10) Business Days after receipt of the Certificate of Completion, the EDC may conduct a Witness Test at a mutually convenient time, which must be passed. If the EDC does not conduct the Witness Test within 10 Business Days or within the time otherwise mutually agreed to by the Parties, the Witness Test is deemed waived. (See Appendix 10 for timeline comparison)

4.4.5. Unless the EDC determines and demonstrates that the Small Generator Facility cannot be interconnected safely and reliably, EDC signs application approval line on the Interconnection Request form subject to all of the conditions set forth in 4.4.5.1-4.4.5.3 being met:

4.4.5.1. The Small Generator Facility being approved by local or municipal electric code officials with jurisdiction over the interconnection; and

4.4.5.2. A Certificate of Completion being returned to the EDC; and

4.4.5.3. Successful completion of the Witness Test, if conducted by the EDC.

4.4.6. If the Small Generator Facility is not approved under a Level 1 review, the Interconnection Customer may submit a new Interconnection Request for consideration under Level 2, Level 3 or Level 3A procedures specified in 5 and 6 and 7 below without sacrificing the original Queue Position.

PA Small Generator Coalition/SEIA Comments: ***The timelines proposed are significantly longer than necessary and will constitute new barriers to installation. We had hoped to be able to treat most small generator applicants in a category where review could be expedited. This process allows ten business days to determine whether an application is complete, fifteen more business days to review the application and another ten business days to run a witness test, with a result that even the simplest system application could take up to two months to process. In contrast, New Jersey provides a 20-day default approval for small systems and FERC found it should only take three days to review an application for completeness. We have a similar disagreement with the timelines for the other Levels as well.***

FE Comment: The MADRI timeline represents a reasonable balance allowing adequate time to appropriately review the installation for safety and reliability. Several jurisdictions provide significantly longer time periods than those provided herein.

5. Level 2 Interconnection Review

5.1. Each EDC shall adopt a Level 2 interconnection review procedure set forth in 5.4 below. The EDC shall use the Level 2 interconnection review procedure for an Interconnection Request that meets the criteria in 5.1.1-5.1.4 below and for Interconnection Requests that were considered but not approved under a Level 1 review if the Interconnection Customer submits a new Interconnection Request for consideration under Level 2 procedures:

5.1.1. The Small Generator Facility is inverter-based; and

Technical Note: Because of the higher fault current capability and longer clearing times associated with rotating equipment operating in Parallel that does not utilize an inverter, the EDC may need to require a preliminary impact study to determine the probability of Adverse System Impacts. This study may be performed under level 3 or 3A procedures as set forth below.

PA Small Generator Coalition/SEIA Comments: ***The MADRI Level 2 process is clearly drawn from the technical interconnection procedures in the FERC fast track process for up to 2MW. That process is not limited to inverter based technologies and there is no reason to exclude rotating generators. The allowance of rotating equipment in the FERC procedures was acceptable to Edison Electric Institute, NRECA, the Small Generator Coalition and NARUC as evidenced by their consensus filing. This new limitation moves in the wrong direction and will become a significant barrier to the use of non-inverter based distributed generation.***

5.1.2. The Small Generator Facility has an Electric Nameplate Capacity of 2 MVA or less; and

5.1.3. The Customer Interconnection Equipment proposed for the Small Generator Facility is Certified; and

5.1.4. The proposed connection is to (1) a radial distribution circuit, or (2) a Spot Network limited to serving one customer.

5.2. For a Small Generator Facility described at 5.1 above, the EDC shall approve interconnection under the Level 2 interconnection review procedure set forth in 5.4 below if all of the Level 2 screening criteria set forth in 5.3 below are met. An EDC shall not impose additional requirements not specifically authorized under this section 5.

5.3. Level 2 Screening Criteria

5.3.1. For interconnection of a proposed Small Generator Facility to a radial distribution circuit, the aggregated generation, including the proposed Small Generator Facility, on the circuit will not exceed 15% of the Line Section annual peak load as most recently measured at the sub station.

5.3.2. For interconnection of a proposed Small Generator Facility to the load side of Spot Network protectors, the proposed Small Generator Facility must utilize an inverter-based equipment package and, the Customer Interconnection Equipment proposed for the Small Generator Facility must be Certified and with the aggregated other generation, must not exceed the smaller of 5% of a Spot Network's maximum load or 50kVA. (See 7.3 for criteria and procedures for interconnecting to an Area Network).

5.3.3. The proposed Small Generator Facility, in aggregation with other generation on the distribution circuit, will not contribute more than 10 % to the distribution circuit's maximum Fault Current at the point on the primary (high) voltage distribution line nearest the Point of Common Coupling.

5.3.4. The proposed Small Generator Facility, in aggregate with other generation on the distribution circuit, will not cause any distribution protective devices and equipment (including, but not limited, to substation breakers, fuse cutouts, and line reclosers), or other customer equipment on the Electric Distribution System to be exposed to fault currents exceeding 90% of the short circuit interrupting capability; nor is the Interconnection Request for a location on a circuit that already exceeds 90% of the short circuit interrupting capability.

PPL Electric Utilities and First Energy Comments:

PPL Electric Utilities:
As we read the document, we understand it says is that if a Small Generator Facility connects to the distribution system, the maximum available fault current must not exceed 80-90 percent of the [existing] equipment rating, considering the contribution from the IPP. If the available contribution exceeds that percentage, the IPP must either pay for replacement of equipment or not connect.

We have the following observations.

1) Fault current calculations assume an impedance based upon a particular physical line design. We use flat spaced horizontal construction on our distribution system. However, other construction types exist on our system and have a direct effect on the 12kv line reactance. An error as high as 5% is possible between flat horizontal and close spaced vertical construction. As a general rule, we do not keep track of the type of construction used out in the distribution system.

2) Further, the accuracy of our station duties might introduce another 2-3 percent error.

3) The interrupting capability of equipment that has been in the air for 20 years is probably not as good as what it was out of the box. This might introduce a 5% reduction.

4) Finally, fault calculations assume 1.0 pu voltage at the source for classical approach. PPL EU system voltage varies and is often higher than 1.0 pu. On the 12.47 kV system, we operate closer to 13 kV most of the time. Therefore fault currents can be higher by 4-5 percent because of the higher source voltage. If we add up the error margins, derating of equipment and higher operating voltage, we get a variation between 16 to 18 percent as an absolute worst case. Note, that we did not consider data integrity that could be a source of additional errors.

Based on the above discussion, we are leaning towards the 80% value. This provides some safety margin and potentially avoids having overdutied equipment because of the fault contribution of IPPs.

Recognize that we are not sure of the 5% derating of interrupting capability for aged equipment, but it does seem reasonable.

We offer the above be considered as the technical basis for using 80%.

First Energy Comments:

1. ***FE supports PPL's logic in support of 80%.***
2. ***It is important to note that the decision had been made to leave these values blank and defer to the states to make an appropriate determination. It was at the insistence of some that inserting values was more appropriate than leaving them blank, even though there was no consensus on the value. Further, after reviewing PPL's logic, many that had endorsed the higher value indicated their support for the 80% endorsed by the EDCs but were reluctant to change the value for the sake of expediency.***
3. ***Where there is likelihood that states may adopt any number other than that, which is contained in the standard, it is appropriate to use the more conservative number.***
4. ***This decision represents a potential serious safety concern and should not have been made administratively.***
5. ***Additional Text for addressing fault ratings of customer equipment: Where there is any potential for the provisions of this paragraph to be applicable the EDC may assume fault duty ratings for customer equipment based on minimal ratings for equipment available as of the earlier of 1950 or the construction date of any potentially affected customers.***

5.3.5. The proposed Small Generator Facility's Point of Interconnection will not be on a transmission line.

5.3.6. Using the table below, determine the type of interconnection to a primary distribution line. This screen includes a review of the type of electrical service provided to the Interconnection Customer, including line configuration and the transformer connection to limit the potential for creating over voltages on the EDC's Electric Distribution System due to a loss of ground during the operating time of any anti-islanding function.

Primary Distribution Line Type	Type of Interconnection to Primary Distribution Line	Result/Criteria
Three-phase, three wire	3-phase or single phase, phase-to-phase	Pass screen
Three-phase, four wire	Effectively-grounded 3 phase or Single-phase, line-to-neutral	Pass screen

5.3.7. If the proposed Small Generator Facility is to be interconnected on single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed Small Generator Facility, will not exceed 20 kVA.

5.3.8. If the proposed Small Generator Facility is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, its addition will not create an imbalance between the two sides of the 240 volt service of more than 20% of the nameplate rating of the service transformer.

5.3.9. The Small Generator Facility, in aggregate with other generation interconnected to the distribution side of a substation transformer feeding the circuit where the Small Generator Facility proposes to interconnect shall not exceed 10 MVA in an area where there are known, or posted transient stability limitations to generating units located in the general electrical vicinity (e.g. three or four distribution busses from the point of interconnection).

5.3.10. Except as permitted under any additional review provided for in 5.5.1, no construction of facilities by the Electric Distribution Company on its own system will be required to accommodate the Small Generator Facility, i.e. the interconnection will use existing customer facilities.

<u>FE Comment:</u> The additional language added to the end of the sentence (i.e….) is unnecessary and potentially confusing. It's a given that the interconnection will occur on the customer's facilities. This Section 5.3.10 addresses the need for any construction necessary on the EDC's system and is intended only as one of the screens entitling the interconnection to occur under a Level II review process.

5.4. Level 2 Interconnection Process

5.4.1. Interconnection Request. Interconnection Customer shall submit to EDC an Interconnection Request in the form specified in Appendix 2

5.4.2. The EDC will within ten (10) Business Days after receipt of the application, at the designated EDC address, inform the Applicant that the Interconnection Request is either complete or incomplete and if incomplete, what materials are missing. In the event the Applicant does not receive such notification in the appropriate time frame, the Applicant should contact the EDC as quickly as possible to determine the status of the application and to verify that the EDC has received the application. (See Appendix 10 for timeline comparison)

5.4.2.1. In the event the EDC does not have a record of receipt of the Interconnection Request and/or cannot locate same, the Applicant will provide the EDC with an additional copy of the Interconnection Request. If the Applicant can demonstrate that the original Interconnection Request was delivered to the EDC, the EDC shall be required to forgo the initial 10-day response period and expedite their review to complete their evaluation of the Interconnection Request within 20 days receipt of the Applicant's re-submittal.

5.4.3. If in the process of evaluating the interconnection request, the EDC determines other information is required to complete the evaluation, the EDC may request said information, which shall be provided by the Interconnection Customer. The time required for the receipt of the additional information may extend the time necessary to complete the evaluation, but only to the extent of the time required for the receipt of the additional information. The EDC may not begin the review process at the beginning of the twenty-day period or alter the Interconnection Customer's Queue Position.

5.4.4. Queuing Priority. Once the Interconnection Request is deemed complete by the EDC, the EDC shall assign a Queue Position based upon the date and time the Interconnection Request is determined to be complete. The Queue Position of each Interconnection Request will be used to determine the potential Adverse System Impact of the Small Generator Facility based on the relevant screening criteria summarized in this section 5. The Interconnection Customer shall proceed under the timeframes of this section. The EDC will schedule

a Scoping Meeting to notify the Interconnection Customer about other higher-queued Interconnection Customers on the same radial line or Spot Network that the Interconnection Customer is seeking to interconnect to.

FE Comment: ***The additional text after "higher-queued Interconnection Customers", previously added, should be stricken or the term "radial line" should be changed to "substation bus". All customer-generators connected to the distribution side of a substation transformer need to be considered in this analysis.***

5.4.5. Initial Review. Within 20 Business Days after the EDC notifies Interconnection Customer it has received a completed Interconnection Request, the EDC shall: (1) evaluate the Interconnection Request using the Level 2 screening criteria set forth at 5.3 above, (2) review Interconnection Customer's analysis (if provided by Interconnection Customer) using the same criteria, and (3) provide Interconnection Customer with its evaluation, including a comparison of the results of its own analyses with those of Interconnection Customer (if applicable). (See Appendix 10 for timeline comparison)

5.4.6. Upon providing reasonable notice within ten (10) Business Days after receipt of the Certificate of Completion, the EDC may conduct a Witness Test at a mutually convenient time. If the EDC does not conduct the Witness Test within 10 Business Days or within the time otherwise mutually agreed to by the Parties, the Witness Test is deemed waived. (See Appendix 10 for timeline comparison)

5.4.7. If the EDC determines that the Interconnection Request: (1) passes the Level 2 screening criteria, or (2) fails one or more of the Level 2 screening criteria but determines that the Small Generator Facility can be interconnected safely and reliably, it shall provide Interconnection Customer a Standard Small Generator Interconnection Agreement provided in Appendix 7 within five Business Days after such determination.

5.4.8. Additional review may be appropriate if a Small Generator Facility has failed to meet one or more of the Level 2 screens, but the initial review indicates that additional review may enable the EDC to determine that the Small Generator Facility can be interconnected consistent with safety, reliability, and power quality criteria. 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 criteria. 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.

5.5. Interconnection of the Small Generator Facility. The Interconnection Customer will have either 30 Business Days, or another mutually agreeable timeframe after receipt of the Standard Small Generator Interconnection Agreement to sign and return the Standard Small Generator Interconnection Agreement. If the Interconnection Customer does not sign the Standard Small Generator Interconnection Agreement within 30 Business Days, the request will be deemed withdrawn unless the Interconnection Customer requests to have the deadline extended. The request for such an extension shall not be unreasonably denied by the EDC. If any construction is required, the interconnection of the Small Generator Facility will proceed according to any milestones agreed to by the Parties in the Standard Small Generator Interconnection Agreement. The Interconnection Agreement shall not be final until:

5.5.1. Any milestones agreed to in the Standard Small Generator Interconnection Agreement are satisfied; and
5.5.2. The Small Generator Facility is approved by electric code officials with jurisdiction over the interconnection; and
5.5.3. The Interconnection Customer provides a Certificate of Completion to the EDC; and
5.5.4. There is a successful completion of the Witness Test, if conducted by the EDC.

5.6. If the Small Generator Facility is not approved under a Level 2 review, the Interconnection Customer may submit a new Interconnection Request for consideration under a Level 3 or 3A interconnection review as specified in 6 and 7 below; however, the Queue Position assigned to the Level 2 Interconnection Request shall be retained.

PA Small Generator Coalition/SEIA Comments: ***Most regulations do not contain provisions dealing with this kind of minutiae. If a default procedure is established and the applicant can show that it submitted the request, the application should be approved unless the utility can show that interconnection will cause harm to the system.***

All of the time frames for completing the interconnection process are too long and will represent a barrier to installations. The major objection is not with the time allowances for any individual activity but that each time allowance is additive so that total time per application is excessive. There is no reason why a generator that passes all of the screens for Level 2 should not be provided a partially executed interconnection agreement within 25 business days (5 weeks). This should be the outside limit on the

time a utility may contemplate a request for interconnection that passes the screens and the individual time frames should give way to meet this final deadline.

With efficient processing, a utility could authorize interconnection within 3 to 5 days of receipt of an application. If the application was complete and processed administratively on day 1, on day 2 the screens could be analyzed (in the FERC process utility engineers suggested Level 2 screens on average would require 3 hours of work). On day 3 the interconnection customer could be notified that its interconnection was approved and a partially executed agreement was being mailed (or sent electronically or by fax). Total time from receipt of application to approval equals 3 days.

6. Level 3 Interconnection Review

6.1. Each EDC shall adopt a Level 3 interconnection review procedure as set forth in 6.3 below. The EDC shall use the Level 3 interconnection review procedure to evaluate Interconnection Requests that meet the criteria in 6.1.1-6.1.3 below and for Interconnection Requests that were considered but not approved under a Level 2 (Section 5) or a Level 3A (Section 7) review if the Interconnection Customer submits a new Interconnection Request for consideration under Level 3:

6.1.1. The Small Generator Facility has an Electric Nameplate Capacity that is greater than 2MVA and no larger than 10 MVA or;
6.1.2. The Small Generator Facility is less than 2 MVA and not Certified
6.1.3. The Small Generator Facility is less than 2 MVA and non-inverter based.

6.2. For a Small Generator Facility meeting the criteria set forth in Section 6.1 above, the EDC shall use the Level 3 interconnection procedures set forth in 6.3 below to determine whether or not to approve the interconnection.

6.3. Level 3 Interconnection Review Process

6.3.1. By mutual agreement of the Parties, the Scoping Meeting, Interconnection Feasibility Study, Interconnection Impact Study, or Interconnection Facilities Studies (or any combination thereof) as set forth in these Level 3 procedures may be waived.
6.3.2. Interconnection Request. Interconnection Customer shall submit to the EDC an Interconnection Request in the form specified in Appendix 2 of these procedures. Within ten Business Days from the date of receipt of the Interconnection Request at the designated EDC address, the EDC shall notify Interconnection Customer whether the request is complete. If the Interconnection Request is

not complete, the EDC shall at the same time provide Interconnection Customer in writing a list detailing all information that must be provided to complete the Interconnection Request. The Interconnection Customer shall have 10 Business Days, unless there is another mutually agreed upon timeframe, to provide appropriate data in order to complete the Interconnection Request or the Interconnection Request will be considered withdrawn. The Interconnection Request shall be deemed complete when the required information has been provided by the Interconnection Customer, or the Parties have agreed that the Interconnection Customer may provide additional information at a later time.

6.3.3. Queuing Priority. Once the Interconnection Request is deemed complete by the EDC, the EDC shall assign a Queue Position based upon the date and time the Interconnection Request is determined to be complete. The Queue Position of each Interconnection Request will be used to determine the cost responsibility for the facilities necessary to accommodate the interconnection. The Interconnection Customer shall proceed under the timeframes of this section. The EDC will notify the Interconnection Customer at the Scoping Meeting about other higher-queued Interconnection Customers.

6.3.4. Scoping Meeting. A Scoping Meeting will be held within ten Business Days, or as agreed to by the Parties, after the EDC has notified Interconnection Customer that the Interconnection Request is deemed complete, or Interconnection Customer has requested their interconnection request proceed after failing the requirements of the Level 2 review set forth in 5 or a Level 3A review set forth in 7. The purpose of the meeting shall be to review the Interconnection Request, existing studies relevant to the Interconnection Request, and the results of the application of the Level 1 or Level 2 or Level 3A screening criteria. Parties are expected to bring to the meeting personnel including system engineers and other resources as may be reasonably required to accomplish the purpose of the meeting.

6.3.5. If the Parties agree at the Scoping Meeting that an Interconnection Feasibility Study needs to be performed, EDC shall provide Interconnection Customer, no later than five Business Days after the Scoping Meeting, an Interconnection Feasibility Study Agreement including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study.

6.3.6. If the Parties agree at the Scoping Meeting that an Interconnection Feasibility Study does not need to be performed, EDC shall provide Interconnection Customer, no later than five Business Days after the Scoping Meeting, an Interconnection System Impact Study Agreement including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study.

6.3.7. If the Parties agree at the Scoping Meeting that an Interconnection Feasibility Study and System Impact Study do not need to be

performed, EDC shall provide Interconnection Customer, no later than five Business Days after the Scoping Meeting, an Interconnection Facilities Study Agreement including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study.

6.4. Interconnection Feasibility Study. An Interconnection Feasibility Study will include the following analyses for the purpose of identifying a potential Adverse System Impact to the EDC's Electric Distribution System that would result from the interconnection: (1) initial identification of any circuit breaker short circuit capability limits exceeded as a result of the interconnection, (2) initial identification of any thermal overload or voltage limit violations resulting from the interconnection, (3) initial review of grounding requirements and system protection, and (4) description and non-binding estimated cost of facilities required to interconnect the Small Generator Facility to the EDC's Electric Distribution System in a safe and reliable manner.

6.4.1. If Interconnection Customer asks that the Interconnection Feasibility Study evaluate multiple potential points of interconnection, additional evaluations may need to be performed. All such evaluations are to be paid by Interconnection Customer.

6.4.2. An Interconnection System Impact Study shall not be required if the Interconnection Feasibility Study concludes that there is no Adverse System Impact or if it identifies an Adverse System Impact, but the EDC is able to identify a remedy without the need for an Interconnection System Impact Study. Otherwise an Interconnection System Impact Study shall be required.

6.4.3. The Interconnection Feasibility Study agreement is provided in Appendix 3 of these procedures.

6.5. Interconnection System Impact Study. The Interconnection System Impact Study shall evaluate the impact of the proposed interconnection on the safety and reliability of the EDC's Electric Distribution System. The study shall identify and detail the system impacts that would result if the Small Generator Facility were interconnected without project modifications or system modifications, focusing on the Adverse System Impacts identified in the Interconnection Feasibility Study, or to study potential impacts, including but not limited to those identified in the Scoping Meeting. The study will consider all generating facilities that, on the date the Interconnection System Impact Study is commenced, (1) are directly interconnected with the EDC’s system; (2) have a pending higher Queue Position to interconnect to the system; or, (3) have a signed Interconnection Agreement.

6.5.1. General. The Interconnection System Impact Study will consider, as appropriate, a short circuit analysis, a stability analysis, a power flow analysis, voltage drop and flicker studies, protection and set point coordination studies, and grounding reviews. The Interconnection System Impact Study will state the underlying assumptions of the study, show the results of the analyses, and list any potential impediments to providing the requested interconnection service. The study will indicate required Distribution Upgrades and a non-binding good faith estimate of cost and time to construct.

6.5.2. Distribution Interconnection System Impact Study. A distribution Interconnection System Impact Study shall be performed if a potential Distribution System Adverse System Impact is identified in the Interconnection Feasibility Study. The EDC shall send the Interconnection Customer an Interconnection System Impact Study Agreement within five Business Days of transmittal of the Interconnection Feasibility Study report, including an outline of the scope of the study and a good faith estimate of the cost to perform the study. The study shall incorporate a load flow study, an analysis of equipment interrupting ratings, protection coordination study, voltage drop and flicker studies, protection and set point coordination studies, and grounding reviews, and the impact on system operation, as necessary.

PA Small Generator Coalition/SEIA Comments: This subsection is confusing since much of it is redundant with the previous subsections (6.5 and 6.5.1). It seems to imply an additional more detailed or alternate interconnection system impact study may need to be conducted. Perhaps the language in this subsection describing the procedures could be combined into the previous subsection and this one can be removed.

However, in general, we are very concerned that the Interconnection-customer is at the mercy of the EDC to determine what level of detail and cost the Interconnection System Impact Study would entail. There is no check and balance procedure, perhaps with a third party technical master, to validate the level of study required, thus the fair cost of the study. It would be more constructive for this to be reviewed at the front end of the study, rather than it be challenged afterwards, triggering a dispute resolution process.

6.5.3. The Interconnection System Impact Study agreement is in Appendix 4 of these procedures.

6.6. Interconnection Facilities Study.

6.6.1. Within five Business Days of completion of the Interconnection System Impact Study, a report will be prepared and transmitted to the Interconnection Customer along with an Interconnection Facilities

Study Agreement, which shall include an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study.

6.6.2. The Interconnection Facilities Study shall specify and estimate the cost of the equipment, engineering, procurement and construction work (including overheads) needed to implement the conclusions of the Interconnection Feasibility Study and Interconnection System Impact Study to interconnect the Small Generator Facility. The Interconnection Facilities Study shall also identify: (1) the electrical switching configuration of the equipment, including, without limitation, transformer, switchgear, meters, and other station equipment, (2) the nature and estimated cost of the EDC's Interconnection Facilities and Distribution Upgrades necessary to accomplish the interconnection, and (3) an estimate of the time required to complete the construction and installation of such facilities.

6.6.3. Parties may agree to permit the Interconnection Customer to separately arrange for a third party to design and construct the required Interconnection Facilities. In such cases, the EDC may review the design of the facilities, under the provisions of the Interconnection Facilities Study Agreement. If the Parties agree to separately arrange for design and construction, and comply with any security and confidentiality requirements, the EDC shall make all relevant information and required specifications available to the Interconnection Customer in order to permit Interconnection Customer to obtain an independent design and cost estimate for the facilities, which must be built in accordance with such specifications.

6.6.4. Upon completion of the Interconnection Facilities Study, and with the agreement of Interconnection Customer to pay for Interconnection Facilities and Distribution Upgrades identified in the Interconnection Facilities Study, the EDC shall provide Interconnection Customer a Standard Small Generator Interconnection Agreement within five Business Days.

6.6.5. The Interconnection Facilities Study agreement is in Appendix 5 of these procedures.

6.7. Interconnection of the Small Generator Facility. If, based on the studies performed in 6.4 – 6.6, the EDC determines that it is appropriate to interconnect the Small Generator Facility, the EDC shall provide the Interconnection Customer with a Standard Small Generator Interconnection Agreement. If the Interconnection Request is denied, the EDC shall provide a written explanation explaining why the Interconnection Request was denied.

6.8. Upon providing reasonable notice within ten (10) Business Days after receipt of the Certificate of Completion, the EDC may conduct a Witness Test at a mutually convenient time. If the EDC does not conduct the Witness Test within 10 Business Days or within the time otherwise mutually agreed to by the Parties, the Witness Test is deemed waived.

6.9. Interconnection of the Small Generator Facility. The Interconnection Customer will have either 30 Business Days, or another mutually agreeable timeframe after receipt of the Standard Small Generator Interconnection Agreement to sign and return the Standard Small Generator Interconnection Agreement. If the Interconnection Customer does not sign the Standard Small Generator Interconnection Agreement within 30 Business Days, the request will be deemed withdrawn unless the Interconnection Customer requests to have the deadline extended. The request for such an extension shall not be unreasonably denied by the EDC. If any construction is required, the interconnection of the Small Generator Facility will proceed according to any milestones agreed to by the Parties in the Standard Small Generator Interconnection Agreement. The Interconnection Agreement shall not be final until:

6.9.1.1. The milestones agreed to in the Standard Small Generator Interconnection Agreement are satisfied, and

6.9.1.2. The Small Generator Facility is approved by electric code officials with jurisdiction over the interconnection, and

6.9.1.3. The Interconnection Customer provides a Certificate of Completion to the EDC.

6.9.1.4. There is a successful completion of the Witness Test, if conducted by the EDC.

7. Level 3A Interconnection Review

7.1. Interconnection Customers desiring to interconnect a Small Generator Facility that does not qualify for a Level 1 or a Level 2 review may request to be evaluated under Level 3A procedures as set forth below.

7.2. Queuing Priority. Once the Interconnection Request is deemed complete by the EDC, the EDC shall assign a Queue Position based upon the date and time the Interconnection Request is determined to be complete. The Queue Position of each Interconnection Request will be used to determine the potential Adverse System Impact of the Small Generator Facility based on the relevant screening criteria summarized in this section 7. The Interconnection Customer shall proceed under the timeframes of this section. The EDC will schedule a Scoping Meeting to notify the Interconnection Customer about other higher-queued Interconnection Customers on the same radial line or Area Network that the Interconnection Customer is seeking to interconnect to.

FE Comment: ***The additional text after "higher-queued Interconnection Customers", previously added, should be stricken or the term "radial line" should be changed to "substation bus (for radial interconnections)". All customer-generators connected to the distribution side of a substation transformer needs to be considered in this analysis***

7.3. Interconnection to Area Networks. For Small Generator Facilities submitting an Interconnection Request to be interconnected to the load side of an Area Network, the EDC, notwithstanding any conflicting requirements in the PJM Small Generator Technical Requirements and Standards, may use the procedures outlined in 7.3.2 and 7.3.4 below;

7.3.1. Facilities Less Than or Equal to 10 kVA. The EDC may use the review procedures set forth in 7.3.2 below for a Level 3A application to interconnect a Small Generator Facility that meets all of the criteria in 7.3.1.1 – 7.3.1.5 below:

7.3.1.1. The Electric Nameplate Capacity of the Small Generator Facility is equal to or less than 10kVA; and

7.3.1.2. The proposed Small Generator Facility utilizes a Certified inverter-based equipment package for interconnection; and

7.3.1.3. The Customer-generator installs reverse power relays and/or other protection functions that prevent power flow beyond the Point of Interconnection; and

7.3.1.4. The aggregated other generation on the Area Network does not exceed the smaller of 5% of an Area Network's maximum load or 10kVA.

7.3.1.5. No construction of facilities by the Electric Distribution Company on its own system will be required to accommodate the Small Generator Facility, i.e. the interconnection will use existing customer facilities.

FE Comment: ***The additional language added to the end of the sentence (i.e….) is unnecessary and potentially confusing. It's a given that the interconnection will occur on the customer's facilities. This Section 5.3.10 addresses the need for any construction necessary on the EDC's system and is intended only as one of the screens entitling the interconnection to occur under a Level II review process.***

7.3.2. The proposed Small Generator Facility meeting the criteria set forth in 7.3.1.1 through 7.3.1.5 above shall be presumed to be appropriate for interconnecting to an Area network and shall be further evaluated by the EDC based on the following procedures:

7.3.2.1. The EDC shall evaluate the Interconnection Request under Level 1 interconnection review procedures as set forth in 4 except that the EDC may have 20 days to conduct an Area Network impact study to determine any potential adverse impacts of interconnecting to the EDC's area network.

FE Comment: ***The EDC may not have sufficient data to perform the impact and may need to install monitoring in order to complete the study, in which case the interconnection shod not fall under a 3A review.***

<u>Suggested additional text</u>: "In the event the EDC must install monitoring or metering on a portion or portions of the Area Network the Interconnection Request shall be denied; however, the Interconnection Customer may elect to submit a new Interconnection Request for consideration under Level 3 procedures."

7.3.2.2. In the event the Area Network impact study identifies potential Adverse System Impacts, the EDC may determine at its sole discretion that it is inappropriate for the Small Generator Facility to interconnect to the Area Network in which case the Interconnection Request shall be denied; however, the Interconnection Customer may elect to submit a new Interconnection Request for consideration under level 3 procedures in which case the Queue Position assigned to the Level 3A Interconnection Request shall be retained.

7.3.2.3. The EDC shall conduct the Area Network impact study at its own expense.

<u>First Energy Comments:</u> First Energy proposes the following as alternative language for this section:

"The EDC shall conduct the Area Network impact study at its own expense if: 1) the EDC is able to recover its costs on a full & current basis through an appropriate mechanism; or 2) in the event the Area Network impact study identifies potential adverse impacts, the costs shall become the responsibility of the interconnection customer."

7.3.2.4. In the event the EDC denies the Interconnection Request, the EDC shall provide the Interconnection Customer with a copy of its Area Network impact study and written justification for denying the Interconnection Request under these 7.3.2 procedures.

7.3.3. Facilities Greater Than 10 kVA and Equal to or Less Than 50 kVA. The EDC may use the review procedures set forth in 7.3.4 below for a Level 3A application to interconnect a Small Generator Facility that meets all of the criteria in 7.3.3.1 – 7.3.3.5 below:

7.3.3.1. The Electric Nameplate Capacity of the Small Generator Facility is greater than 10 kVA and equal to or less than 50kVA; and

7.3.3.2. The proposed Small Generator Facility utilizes a Certified inverter-based equipment package for interconnection; and

7.3.3.3. The Small Generator Facility utilizes reverse power relays and/or other protection functions that prevent power flow beyond the Point of Interconnection; and

7.3.3.4. The aggregated other generation on the Area Network does not exceed the smaller of 5% of an Area Network's maximum load or 50kVA.

7.3.3.5. No construction of facilities by the Electric Distribution Company on its own system will be required to accommodate the Small Generator Facility, i.e. the interconnection will use existing customer facilities.

7.3.4. The proposed Small Generator Facility meeting the criteria set forth in 7.3.3.1 through 7.3.3.5 above shall be presumed to be appropriate for interconnecting to an Area network and shall be further evaluated by the EDC based on the following procedures:

7.3.4.1. The EDC shall evaluate the Interconnection Request under Level 2 interconnection review procedures as set forth in 5 except that the EDC may have 25 days to conduct an Area Network impact study to determine any potential adverse impacts of interconnecting to the EDC's area network.

FE Comment: ***The EDC may not have sufficient data to perform the impact and may need to install monitoring in order to complete the study, in which case the interconnection should not fall under a 3A review.***

Suggested additional text: In the event the EDC must install monitoring or metering on a portion or portions of the Area Network the Interconnection Request shall be denied; however, the Interconnection Customer may elect to submit a new Interconnection Request for consideration under Level 3 procedures.

7.3.4.2. In the event the Area Network impact study identifies potential Adverse System Impacts, the EDC may determine at its sole discretion that it is inappropriate for the Small Generator Facility to interconnect to the Area Network in which case the Interconnection Request shall be denied; however, the Interconnection Customer may elect to submit a new Interconnection Request for consideration under level 3 procedures in which case the Queue Position assigned to the Level 3A Interconnection Request shall be retained.

7.3.4.3. The EDC shall conduct the Area Network impact study at its own expense.

First Energy Comment: ***First Energy proposes the following as alternative language for this section.***

"The EDC shall conduct the Area Network impact study at its own expense: 1) if the EDC is able to recover its costs on a full & current basis through an appropriate mechanism; or 2) in the event the Area Network impact study identifies potential adverse impacts, the costs shall become the responsibility of the interconnection customer. However, if the initial review indicates the study will require significantly more than six man-hours to complete, the Interconnection Request shall be denied; the Interconnection Customer may elect to submit a new Interconnection Request for consideration under Level 3 procedures."

7.3.4.4. In the event the EDC denies the Interconnection Request, the EDC shall provide the Interconnection Customer with a copy of its Area Network impact study and written justification for denying the Interconnection Request under these 7.3.4 procedures.

<u>PA Small Generator Coalition/SEIA Comments:</u> There should be a path for approval of inverter based equipment and generators without the capability to export to be approved under Level 1 or Level 2. Assigning all proposed interconnections to Level 3a (at utility discretion) or otherwise to Level 3 will mean all generators may need to endure unnecessary interconnection study costs and time delays. This will deter all but the most profitable dg units from interconnecting to urban networks – the location where dg is most needed. The proposed Level 2 review for network interconnections in New Jersey is a very conservative approach that still provides a clear path. There has been no legitimate technical basis presented for the rejection of the New Jersey standard here and it continues to represent a good balance between the additional concerns posed by networked interconnections and general barriers to interconnection that cannot be overcome by dg applicants.

7.4. Interconnection to Circuits That Are Not Networked. At the mutual agreement of the EDC and the Interconnection Customer, the EDC may use the Level 3A review procedure for an Interconnection Request to interconnect a Small Generator Facility that meets all of the following criteria:

Technical Note: Any generator connected to the EDC's electrical system may have an adverse impact, even if it is not exporting power. When a fault occurs, the generator may contribute to the fault current until fault sensing relays at the DR facility detect the fault and operate a device to remove the generator from the system. During this period this additional fault current may cause delayed clearing of utility equipment. The addition of a larger Small Generator Facility must be carefully evaluated to determine the impact of the generator when Paralleled.

7.4.1. The Small Generator Facility has an Electric Nameplate Capacity of 10 MVA or less, and

7.4.2. The aggregated total of the Electric Nameplate Capacity of all of the generators on the circuit, including the proposed Small Generator Facility, is 10 MVA or less, and

7.4.3. The Small Generator Facility will use reverse power relays or other protection functions that prevent power flow onto the utility grid, and

7.4.4. The Small Generator Facility will be interconnected with a radial distribution circuit, and

7.4.5. The Small Generator Facility is not served by a shared transformer, and

7.4.6. No construction of facilities by the Electric Distribution Company on its own system will be required to accommodate the Small Generator Facility, i.e. the interconnection will use existing customer facilities.

7.5. For a Small Generator Facility described in 7.4 above, the EDC may interconnect under the Level 3A review if all of the applicable requirements at 7.5.1 through 7.5.5 below are met.

7.5.1. The proposed Small Generator Facility, in aggregation with other generation on the distribution circuit, will not contribute more than 10 % to the distribution circuit's maximum Fault Current at the point on the primary (high) voltage distribution line nearest the Point of Common Coupling.

7.5.2. The aggregate generation capacity on the distribution circuit to which the Small Generator Facility will interconnect, including its capacity, shall not cause any distribution protective equipment, or customer equipment on the distribution system, to exceed 90% ***[PPL and First Energy disagree with the 90% value. See PPL & First Energy Notes to 5.3.4]*** of the short-circuit interrupting capability of the equipment. In addition, a Small Generator Facility shall not be connected to a circuit that already exceeds 90% ***[PPL and First Energy disagree with the 90% value. See PPL & First Energy Notes to 5.3.4]*** of the short circuit interrupting capability.

7.5.3. If there are known or posted transient stability limits to generating units located in the general electrical vicinity of the proposed point of common coupling (e.g. 3 or 4 transmission voltage level busses), the proposed customer-generator shall be subject to a Level 3 review.

7.5.4. Using the table below, determine the type of interconnection to a primary distribution line. This screen includes a review of the type of electrical service provided to the Interconnection Customer, including line configuration and the transformer connection to limit the potential for creating over voltages on the EDC's Electric Distribution System due to a loss of ground during the operating time of any anti-islanding function.

Primary Distribution Line Type	Type of Interconnection to Primary Distribution Line	Result / Criteria
Three-phase, three wire	3-phase or single phase, phase-to-phase	Pass screen
Three-phase, four wire	Effectively-grounded 3 phase or Single-phase, line-to-neutral	Pass screen

7.5.5. For a Small Generator Facility failing to meet the criteria set forth at 7.3 above, the EDC shall use the Level 3 interconnection procedures set forth in 6.0 above to determine whether or not to approve the interconnection; however, the Queue Position assigned to the Level 3A Interconnection Request shall be retained.

7.6. For a small Generator Facility that satisfies the criteria at 7.3 or 7.4 or 7.5 above, the EDC may upon providing reasonable notice within ten (10) Business Days after receipt of the Certificate of Completion conduct a Witness Test at a mutually convenient time. If the EDC does not conduct the Witness Test within 10 Business Days or within the time otherwise mutually agreed to by the Parties, the Witness Test is deemed waived.

7.7. Interconnection of the Small Generator Facility. For a small Generator Facility that satisfies the criteria at 7.3 or 7.4 or 7.5 above, the EDC shall approve the Interconnection Request and provide a Standard Interconnection Agreement for the Interconnection Customer to sign.

7.7.1. The Interconnection Customer will have either 30 Business Days, or another mutually agreeable timeframe after receipt of the Standard Small Generator Interconnection Agreement to sign and return the Standard Small Generator Interconnection Agreement. If the Interconnection Customer does not sign the Standard Small

Generator Interconnection Agreement within 30 Business Days, the request will be deemed withdrawn unless the Parties mutually agree to extend the time period for executing the Standard Small Generator Interconnection Agreement. After the Standard Small Generator Interconnection Agreement is signed by the Parties, interconnection of the Small Generator Facility will proceed according to any milestones agreed to by the Parties in the Standard Small Generator Interconnection Agreement. The Interconnection Agreement shall not be final until:

7.7.1.1. Any milestones agreed to in the Standard Small Generator Interconnection Agreement are satisfied, and

7.7.1.2. The Small Generator Facility is approved by electric code officials with jurisdiction over the interconnection, and

7.7.1.3. The Interconnection Customer provides a Certificate of Completion to the EDC, and.

7.7.1.4. There is a successful completion of the Witness Test, if conducted by the EDC.

8. Disputes

8.1. Each Party agrees to attempt to resolve all disputes regarding the provisions of these interconnection procedures promptly, equitably and in a good faith manner.

Appendix 1
Interconnection Request Form and Conditional Interconnection Agreement
Inverter-based Small Generator Facilities
10 kVA and Smaller.

Contact Information

Interconnection Customer_____

Company Name or Individual: _____Contact Person:_____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Alternative Contact Information (if different from Applicant)

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Facility Information

Location (if different from above): _____

Electric Distribution Company (EDC): _____

Account Number (existing EDC customers): _____

Inverter Manufacturer:_____
Model_____

Nameplate Rating: ___(kW) ___ (kVA) __(AC Volts) Single☐ or Three☐ Phase

System Design Capacity: _____ (kW) _____ (kVA)

Prime Mover: Photovoltaic ☐ Reciprocating Engine ☐ Fuel Cell ☐ Turbine ☐

Other _____

Energy Source: Solar ☐ Wind ☐ Hydro ☐ Diesel ☐ Natural Gas

Fuel Oil ☐ Other___ _____

Is the inverter Certified? Yes☐ No ☐
(If yes, attach manufacturer's cut sheet showing listing and label information from the appropriate listing authority, e.g. UL 1741 listing)

Estimated Install Date: _____Est. In-Service Date: _____

Insurance

Paragraphs 6 and 7 of the attached Terms and Conditions contain provisions related to liability, and indemnification and should be carefully considered by the Interconnection Customer. The Interconnection Customer is not required to obtain general liability insurance coverage as part of this Conditional Agreement; however, the Interconnection Customer is advised to consider obtaining such coverage.

FE Comment: FE believes that the text in the last two sentences above was changed without the agreement of the EDCs, certainly with out FE's. The EDCs believe that it is appropriate to require insurance as many other jurisdictions do. However the EDC's agreed to compromise based on the inclusion of the following:

"The Interconnection Customer is not required to provide general liability insurance coverage as part of this Conditional Agreement. However, due to the potential risk of the Small Generator Facility causing damages, it is recommended that the Interconnection Customer protect itself with liability insurance."

The Interconnection Customer hereby acknowledges that it has read paragraphs 6 and 7 of the attached Terms and Conditions ☐ Yes.

FE Comment: Initials should be required rather than a check box. It's difficult to authenticate the origin of a check or an X.

Customer Signature

I hereby certify that, to the best of my knowledge, all of the information provided in this application is true and I agree to abide by the Terms and Conditions on the following page.

Interconnecting Customer Signature: _____

Title: _____ Date:_____

Conditional Approval to Interconnect Small Generator Facility

Interconnection Request is complete and interconnection of the Small Generator Facility is approved contingent upon the terms and conditions of this Agreement and return of a duly executed Certificate of Completion:

Application ID number: _____

Electric Distribution Company (EDC) waives Witness Test? Yes ☐ No ☐

FE Comment: ***Initials should be required in addition to the check boxes. It's difficult to authenticate the origin of a check or an X.***

EDC Name:_____

EDC Signature: _____ Title: _____ Date: _____

Terms and Conditions for Interconnections

1) **Construction of the Small Generator Facility**. The Interconnection Customer may proceed to construct (including operational testing not to exceed 2 hours) the Small Generator Facility once conditional approval to interconnect a Small Generator Facility has been provided by the EDC.

2) **Final Interconnection and Operation.** The Interconnection Customer may operate the Small Generator Facility and interconnect with the EDC's Electric Distribution System once all of the following have occurred:

   a) Electrical Inspection**:** Upon completing construction, the Interconnection Customer will cause the Small Generator Facility to be inspected by the local electrical wiring inspector with jurisdiction.
   b) Certificate of Completion: The Interconnecting Customer returns the Certificate of Completion appearing as Attachment 1 to the Agreement to the EDC at address noted.

PA Small Generator Coalition/SEIA Comments: ***Requiring Level 1 Customers to return the Certificate of Completion to the EDC before they can operate permissibly creates an additional step, delay and unnecessary paperwork. For small systems such as these, they should be able to operate upon submitting proof of completion of the installation in accordance with the approved application and showing local code official approval.***

   c) EDC has either waived the right to a Witness Test in the Interconnection Request, or completed its Witness Test as per the following:

      i) EDC Right of Inspection. Within ten (10) business days after receipt of the Certificate of Completion, the EDC may, upon reasonable notice and at a mutually convenient time, conduct a Witness Test of the Small Generator Facility to ensure that all equipment has been appropriately installed and that all electrical connections have been made in accordance with applicable codes.
      ii) If the EDC does not perform the Witness Test within 10 business days or by mutual agreement of the Parties, the Witness Test is deemed waived.

   d) Suitable EDC metering equipment required under applicable tariffs must be installed and tested in accordance with applicable ANSI standards.

3) **PeriodicTesting.** All interconnection-related protective functions and associated batteries shall be periodically tested at intervals specified by the manufacturer, system integrator, or authority who has jurisdiction over the DR interconnection. Periodic test reports or a log for inspection shall be maintained.

FE Comment: The following text should be added to the end of the last sentence.

", in accordance with the provisions of IEEE 1547."

PA Small Generator Coalition/SEIA Comments*: For Level 1 customers it is impractical to require the customer to conduct periodic testing and maintain a log for inspection as a term and condition of its agreement with the EDC. Any customer who fails to comply with this requirement could be subject to termination of its interconnection agreement.*

4) **Access.** The EDC shall have access to the disconnect switch and metering equipment of the Small Generator Facility at all times. The EDC shall provide reasonable notice to the customer when possible prior to using its right of access.

5) **Disconnection.** The EDC may temporarily disconnect the Small Generator Facility upon the following conditions:

   a) For scheduled outages upon reasonable notice,
   b) For unscheduled outages or emergency conditions
   c) If the Small Generating Small Generator Facility does not operate in the manner consistent with this Agreement
   d) The EDC has the right to disconnect the Small Generator Facility in the event of improper installation or failure to pass the Witness Test.
   e) The Interconnection Equipment used by the Small Generator Facility is de-listed by the Nationally Recognized Testing Laboratory that provided the listing at the time the interconnection was approved and the EDC shows that the Interconnection Equipment has the potential to cause a safety, reliability or a power quality problem.

6) **Indemnification**. The Parties shall at all times indemnify, defend, and save the other Party harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or inactions of its obligations under this agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

7) **Limitation of Liability**. Each party's liability to the other party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either party be liable to the other party for any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever.

8) **Termination**. This Agreement may be terminated under the following conditions:

   a) **By Interconnection Customer**. The Interconnection Customer may terminate this Agreement by providing written notice to the EDC.
   b) **By the EDC**. The EDC may terminate this Agreement (1) if the Small Generator Facility fails to operate for any consecutive 12-month period, or (2) the Customer fails to remedy a violation of terms of this Agreement.

9) **Permanent Disconnection.** In the event the agreement is terminated, the EDC shall have the right to disconnect its facilities or direct the customer to disconnect its Small Generator Facility

10) **Disputes**

   a) Each Party agrees to attempt to resolve all disputes regarding the provisions of these interconnection procedures promptly, equitably and in a good faith manner

11) **Governing Law, Regulatory Authority, and Rules**. The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of _____, without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

12) **Survival Rights**. This agreement shall continue in effect after termination to the extent necessary to allow or require either Party to fulfill rights or obligations that arose under the Agreement.

13) **Assignment/Transfer of Ownership of the Small Generator Facility**: This Agreement shall survive the transfer of ownership of the Small Generator Facility to a new owner when the new owner agrees in writing to comply with the terms of this Agreement and so notifies the EDC.

FE Comment: ***Rather than simply agreeing to the terms of the Agreement, the new Owner should be required to sign a new agreement with similar terms & conditions to the original agreement.***

PA Small Generator Coalition/SEIA Comments: ***The assignment provisions are imbalanced against the consumer. When a new owner buys a distributed generation facility it is reasonable for them to provide the utility with written notification acknowledging that it will operate in accordance with the interconnection agreement. However, there is no reason to require utility approval of the assignment. This would allow utilities to simply terminate new owners for no reason. There should be a parallel requirement that if the utility is sold, the new owner of the utility must accept the assignment of the obligations under the interconnection agreement and continue to serve the customer under the original terms and conditions. Where systems are integrated into the facilities, sale of the building or property should result in an automatic transfer of the Agreement to the new owner.***

14) **Notice**. Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given if delivered in person, delivered by recognized national courier service, or sent by first class mail, postage prepaid, to the person specified below:

If to Interconnection Customer:

Interconnection Customer: _____

Attention: _____

Address: _____

City: _____ State:_____ Zip:_____

Phone: _____ Fax: _____

If to EDC:

Attention: _____

Address: _____

City: _____ State:_____ Zip:_____

Phone: _____ Fax: _____

Certificate of Completion

Installation Information Check if owner-installed ☐

Interconnection Customer: _____Contact Person:_____

Mailing Address: _____

Location of Small Generator Facility (if different from above):

_____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Electrician:

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

License number: _____

Date Interconnection Agreement approved by the Company: _____

Application ID number: _____

Electrical Inspection:

The system has been installed and inspected in compliance with the local Building/Electrical Code of _____
(Appropriate governmental authority)

Signed (Local Electrical Wiring Inspector, or attach signed electrical inspection):

_____

(Note: Local procedures may differ on how to process approvals from local electric inspection officials)

PA Small Generator Coalition/SEIA Comments: **There is no reason why a copy of the signed Inspection Report should not be satisfactory to be submitted as proof of completion.**

Name (printed): _____

Date: _____

Person/Entity Installing The Small Generation Facility:

Name:_____

Company:_____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

As a condition of interconnection you are required to send/fax/e-mail a copy of this form along with a copy of the signed electrical permit to (insert Company's name below):

Name: _____

Company: _____

Mail 1:_____

Mail 2:_____

City, State ZIP: _____

Phone_____

E-mail_____

Fax No.: _____

Electric Distribution Company (EDC) waives Witness Test? Yes ☐ No ☐

EDC Signature: _____ Title: _____ Date: _____

Final Approval of Interconnection Agreement

The Certificate of Completion has been received and final approval to interconnect the Small Generation Small Generator Facility is granted under the Standard Small Generator Interconnection Procedures.

EDC Signature: _____ Title: _____ Date: _____

Appendix 2
Interconnection Request Form for
Small Generator Facilities
Greater than 10 kVA up to 10 MVA

Customer:

Name: _____ Phone: (___)_____

Address:_____ Municipality: _____

Consulting Engineer or Contractor:

Name: _____ Phone: (___)_____

Address:_____

Estimated In-Service Date: _____

Existing Electric Service:

Capacity: _____Amps Voltage: _____Volts

Service Character: ☐ Single Phase ☐ Three Phase Secondary

3 Phase Transformer Connection ☐ Wye ☐ Delta

Location of Protective Interface Equipment on Property:
(include address if different from customer address) Attention:

Address: _____

City: _____ State:_____ Zip:_____

Phone: _____ Fax: _____

Requested Procedure Under Which to Evaluate Interconnection Request[1]

☐ **Level 2** (Certified inverter based Interconnection Equipment with an aggregate Electric Nameplate Capacity less than or equal to 2,000 kVA)
☐ **Level 3** (Interconnection Equipment with an aggregate Electric Nameplate Capacity less than or equal to 10,000 kVA)
☐ **Level 3A** (Small Generator Facilities with an aggregate Electric Nameplate Capacity equal to or less than 10,000 kVA that operate in parallel but do not export power)

[1] **Note:** Descriptions for interconnection review categories do not list all criteria that must be satisfied. For a complete list of criteria, please refer to the Standard Small Generator Interconnection Procedures

List interconnection components/system(s) to be used in the Small Generation Facility that are Certified (required for Level 2 and Level 3A Interconnection Requests)

Component/System NRTL Providing Label & Listing

1._____

2._____

3._____

4._____

5._____

Please provide copies of manufacturer brochures or technical specifications

Energy Production Equipment/Inverter Information:

☐ Synchronous ☐ Induction ☐ Inverter ☐ Other _____

Rating: _____ kW Rating: _____ kVA

Rated Voltage: _____Volts

Rated Current: _____Amps

System Type Tested (Total System): ☐ Yes ☐ No; attach product literature

For Synchronous Machines:

Manufacturer: _____

Model No. _____ Version No. _____

Submit copies of the Saturation Curve and the Vee Curve

☐ Salient ☐ Non-Salient

Torque: _____ lb-ft Rated RPM: _____ Field Amperes: _____ at rated generator voltage and current and _____% PF over-excited

Type of Exciter: _____

Output Power of Exciter: _____

Type of Voltage Regulator: _____

Locked Rotor Current: _____ Amps Synchronous Speed: _____RPM

Winding Connection: _____ Min. Operating Freq./Time: _____

Generator Connection: ☐ Delta ☐ Wye ☐ Wye Grounded

Direct-axis Synchronous Reactance (Xd) _____ohms

Direct-axis Transient Reactance (X'd) _____ohms

Direct-axis Sub-transient Reactance (X"d) _____ohms

For Induction Machines:

Manufacturer: _____

Model No. _____ Version No. _____

Locked Rotor Current: _____ Amps

Rotor Resistance (Rr)_____ohms Exciting Current ____Amps

Rotor Reactance (Xr)_____ohms Reactive Power Required: _____

Magnetizing Reactance (Xm)_____ohms ___VARs (No Load)

Stator Resistance (Rs)_____ohms ___VARs (Full Load)

Stator Reactance (Xs)_____ohms

Short Circuit Reactance (X"d)_____ohms

Phases: ☐ Single ☐ Three-Phase

Frame Size: _____ Design Letter: ____ Temp. Rise: _____^{o}C.

For Inverters Based Facilities:

Inverter:

Manufacturer:_____ Model: _____

Type: ☐ Forced Commutated ☐ Line Commutated

Rated Output _____ Amps _____ Volts

Efficiency _____% Power Factor _____%

DC Source / Prime Mover:

☐ Solar ☐ Wind ☐ Hydro ☐ Other _____

Rating: _____ kW Rating: _____ kVA

Rated Voltage: _____Volts

Open Circuit Voltage (If applicable): _____Volts

Rated Current: _____Amps

Short Circuit Current (If applicable): _____Amps

Other Facility Information

One Line Diagram attached: ☐ Yes ☐ No

Plot Plan attached: ☐ Yes ☐ No

Installation Test Plan attached: ☐ Yes ☐ No

Customer Signature:

_____ _____ _____

CUSTOMER TITLE DATE

Appendix 3

Interconnection Feasibility Study Agreement

This agreement is made and entered into this _____day of _____by and between_____, a_____ organized and existing under the laws of the State of_____, (‘‘Interconnection Customer,’’) and_____, a _____existing under the laws of the State of _____, (‘‘Electric Distribution Company’’). Interconnection Customer and Electric Distribution Company each may be referred to as a ‘‘Party,’’ or collectively as the ‘‘Parties.’’

Recitals:

Whereas, Interconnection Customer is proposing to develop a Small Generating Facility or generating capacity addition to an existing Small Generating Facility consistent with the Interconnection Request completed by Interconnection Customer on_____; and

Whereas, Interconnection Customer desires to interconnect the Generating Facility with Electric Distribution Company’s Transmission System; and

Whereas, Interconnection Customer has requested Electric Distribution Company to perform an Interconnection Feasibility Study to assess the feasibility of interconnecting the proposed Generating Facility to Electric Distribution Company’s Electric Distribution System;

Now, Therefore, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

1. When used in this agreement, with initial capitalization, the terms specified shall have the meanings indicated. Terms used in this agreement with initial capitalization but not defined in this agreement shall have the meanings specified in Section 2 of the Standard Small Generator Interconnection Procedures.
2. Interconnection Customer elects and Electric Distribution Company shall cause to be performed an Interconnection Feasibility Study consistent with Section 6.4 of the Standard Small Generator Interconnection Procedures.
3. The scope of the Interconnection Feasibility Study shall be subject to the assumptions set forth in Attachment A to this agreement.
4. The Interconnection Feasibility Study shall be based on the technical information provided by Interconnection Customer in the Interconnection Request, as may be modified as the result of the Scoping Meeting. Electric Distribution Company reserves the right to request additional technical information from Interconnection Customer as may reasonably become necessary consistent with Good Utility Practice during the course of the Interconnection Feasibility Study. If Interconnection Customer modifies its Interconnection Request, the time to complete the

Interconnection Feasibility Study may be extended by agreement of the Parties.

5. In performing the study, Electric Distribution Company shall rely, to the extent reasonably practicable, on existing studies of recent vintage. The Interconnection Customer will not be charged for such existing studies; however, Interconnection Customer shall be responsible for charges associated with any new study or modifications to existing studies that are reasonably necessary to perform the Interconnection Feasibility Study.
6. The Interconnection Feasibility Study report shall provide the following information:

    6.1. Preliminary identification of any circuit breaker short circuit capability limits exceeded as a result of the interconnection,
    6.2. Preliminary identification of any thermal overload or voltage limit violations resulting from the interconnection, and
    6.3. Preliminary description and non-bonding estimated cost of facilities required to interconnect the Generating Facility to Electric Distribution Company's Electric Distribution System and to address the identified short circuit and power flow issues.

7. Electric Distribution Company may require a study deposit of the lesser of 100 percent of estimated non-binding good faith study costs or $1,000.
8. The Interconnection Feasibility Study shall be completed and the results shall be transmitted to Interconnection Customer within thirty Calendar Days after this agreement is signed by the Parties.
9. Study fees shall be based on actual costs and will be invoiced to Interconnection Customer after the study is transmitted to Interconnection Customer. The invoice shall include an itemized listing of employee time and costs expended on the study.
10. Interconnection Customer shall pay any actual study costs that exceed the deposit without interest within thirty Calendar Days on receipt of the invoice. Electric Distribution Company shall refund any excess amount without interest within thirty Calendar Days of the invoice.

In witness whereof, the Parties have caused this agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

[Insert name of Electric Distribution Company]

Signed_____
Name (Printed):
_____Title_____

[Insert name of Interconnection Customer]

Signed _____
Name (Printed): _____Title_____

Attachment A to Interconnection Feasibility Study Agreement

Assumptions Used in Conducting the Interconnection Feasibility Study

The Interconnection Feasibility Study will be based upon the information set forth in the Interconnection Request and agreed upon in the Scoping Meeting held on_____:

1. Designation of Point of Interconnection and configuration to be studied.

_____

_____

2. Designation of alternative Points of Interconnection and configuration. Note: 1 and 2 are to be completed by Interconnection Customer.

_____

_____

Note: 1 and 2 are to be completed by the Interconnection Customer. Other assumptions (listed below) are to be provided by Interconnection Customer and Electric Distribution Company.

_____

_____

_____

_____

Appendix 4

Interconnection System Impact Study Agreement

This agreement is made and entered into this _____day of _____by and between_____, a_____ organized and existing under the laws of the State of_____, (‘‘Interconnection Customer,’’) and_____, a _____existing under the laws of the State of _____, (‘‘Electric Distribution Company’’). Interconnection Customer and Electric Distribution Company each may be referred to as a ‘‘Party,’’ or collectively as the ‘‘Parties.’’

Recitals:

Whereas, Interconnection Customer is proposing to develop a Small Generating Facility or generating capacity addition to an existing Small Generating Facility consistent with the Interconnection Request completed by Interconnection Customer on _____ and;

Whereas, Interconnection Customer desires to interconnect the Generating Facility with Electric Distribution Company’s Electric Distribution System;

Whereas, Electric Distribution Company has completed an Interconnection Feasibility Study and provided the results of said study to Interconnection Customer (This recital to be omitted if the Parties have agreed to forego the Interconnection Feasibility Study.);

Whereas, Interconnection Customer has requested Electric Distribution Company to perform an Interconnection System Impact Study to assess the impact of interconnecting the Generating Facility to Electric Distribution Company’s Electric Distribution System;

Now, therefore, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

1. When used in this agreement, with initial capitalization, the terms specified shall have the meanings indicated. Terms used in this agreement with initial capitalization but not defined in this agreement shall have the meanings specified in Section 2 of the Standard Small Generator Interconnection Procedures.
2. Interconnection Customer elects and Electric Distribution Company shall cause to be performed an Interconnection System Impact Study consistent with Section 6.5 of the Standard Small Generator Interconnection Procedures.
3. The scope of the Interconnection System Impact Study shall be subject to the assumptions set forth in Attachment A to this agreement.
4. The Interconnection System Impact Study will be based upon the results of the Interconnection Feasibility Study and the technical information provided by Interconnection Customer in the Interconnection Request. Electric Distribution Company reserves the right to request additional technical information from Interconnection Customer as may reasonably become necessary consistent with Good

Utility Practice during the course of the Interconnection System Impact Study. If Interconnection Customer modifies its designated Point of Interconnection, Interconnection Request, or the technical information provided therein is modified, the time to complete the Interconnection System Impact Study may be extended.

5. The Interconnection System Impact Study report shall provide the following information:

    5.1. Identification of any circuit breaker short circuit capability limits exceeded as a result of the interconnection,
    5.2. Identification of any thermal overload or voltage limit violations resulting from the interconnection,
    5.3. Identification of any instability or inadequately damped response to system disturbances resulting from the interconnection and
    5.4. Description and non-binding, good faith estimated cost of facilities required to interconnect the Generating Facility to Electric Distribution Company's Electric Distribution System and to address the identified short circuit, instability, and power flow issues.

6. Electric Distribution Company may require a study deposit of the lesser of 50 percent of estimated non-binding good faith study costs or $3,000.
7. The distribution Interconnection System Impact Study, if required, shall be completed and the results transmitted to Interconnection Customer within thirty Calendar Days after this agreement is signed by the Parties. The distribution Interconnection System Impact Study, if required, shall be completed and the results transmitted to Interconnection Customer within forty-five Calendar Days after this agreement is signed by the Parties, or in accordance with Electric Distribution Company's queuing procedures.
8. Study fees shall be based on actual costs and will be invoiced to Interconnection Customer after the study is transmitted to Interconnection Customer. The invoice shall include an itemized listing of employee time and costs expended on the study.
9. Interconnection Customer shall pay any actual study costs that exceed the deposit without interest within 30 Calendar Days on receipt of the invoice. Electric Distribution Company shall refund any excess amount without interest within thirty Calendar Days of the invoice.

In witness thereof, the Parties have caused this agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

[Insert name of Electric Distribution Company]

Signed _____
Name (Printed):
_____Title_____

[Insert name of Interconnection Customer]

Signed _____

Name (Printed): _____Title_____

Attachment A to Interconnection System Impact Study Agreement

Assumptions Used in Conducting the Interconnection System Impact Study

The Interconnection System Impact Study shall be based upon the results of the Interconnection Feasibility Study, subject to any modifications in accordance with Section 6.5 of the Standard Small Generator Interconnection Procedures, and the following assumptions:

1. Designation of Point of Interconnection and configuration to be studied.

_____

_____

2. Designation of alternative Points of Interconnection and configuration. Note: 1 and 2 are to be completed by Interconnection Customer.

_____

_____

Note: 1 and 2 are to be completed by the Interconnection Customer. Other assumptions (listed below) are to be provided by Interconnection Customer and Electric Distribution Company.

_____

_____

_____

_____

_____

Appendix 5

Interconnection Facilities Study Agreement

This agreement is made and entered into this _____day of _____by and between_____, a_____ organized and existing under the laws of the State of_____, (‘‘Interconnection Customer,’’) and_____, a _____existing under the laws of the State of _____, (‘‘Electric Distribution Company’’). Interconnection Customer and Electric Distribution Company each may be referred to as a ‘‘Party,’’ or collectively as the ‘‘Parties.’’

Recitals:

Whereas, Interconnection Customer is proposing to develop a Small Generating Facility or generating capacity addition to an existing Small Generating Facility consistent with the Interconnection Request completed by Interconnection Customer on _____; and

Whereas, Interconnection Customer desires to interconnect the Generating Facility with Electric Distribution Company’s Electric Distribution System;

Whereas, Electric Distribution Company has completed an Interconnection System Impact Study and provided the results of said study to Interconnection Customer; and

Whereas, Interconnection Customer has requested Electric Distribution Company to perform an Interconnection Facilities Study to specify and estimate the cost of the equipment, engineering, procurement and construction work needed to implement the conclusions of the Interconnection System Impact Study in accordance with Good Utility Practice to physically and electrically connect the Generating Facility to Electric Distribution Company’s Electric Distribution System.

Now, therefore, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

1. When used in this agreement, with initial capitalization, the terms specified shall have the meanings indicated. Terms used in this agreement with initial capitalization but not defined in this agreement shall have the meanings specified in Section 2 of the Standard Small Generator Interconnection Procedures.
2. Interconnection Customer elects and Electric Distribution Company shall cause an Interconnection Facilities Study consistent with Section 6.6 of the Standard Small Generator Interconnection Procedures.

3. The scope of the Interconnection Facilities Study shall be subject to data provided in Attachment A to this agreement.
4. An Interconnection Facilities Study report (1) shall provide a description, estimated cost of (consistent with Attachment A), schedule for required facilities to interconnect the Generating Facility to Electric Distribution Company's Electric Distribution System and (2) shall address the short circuit, instability, and power flow issues identified in the Interconnection System Impact Study.
5. Electric Distribution Company may require a study deposit of the lesser of 50 percent of estimated non-binding good faith study costs or $10,000.
6. In cases where no Upgrades are required, the Interconnection Facilities Study shall be completed and the results shall be transmitted to Interconnection Customer within thirty Calendar Days after this agreement is signed by the Parties. In cases where Upgrades are required, the Interconnection Facilities Study shall be completed and the results shall be transmitted to Interconnection Customer within forty-five Calendar Days after this agreement is signed by the Parties.
7. Study fees shall be based on actual costs and will be invoiced to Interconnection Customer after the study is transmitted to Interconnection Customer. The invoice shall include an itemized listing of employee time and costs expended on the study.
8. Interconnection Customer shall pay any actual study costs that exceed the deposit without interest within 30 Calendar Days on receipt of the invoice. Electric Distribution Company shall refund any excess amount without interest within thirty Calendar Days of the invoice.

In witness whereof, the Parties have caused this agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

[Insert name of Electric Distribution Company]

Signed _____

Name (Printed):
_____Title_____

[Insert name of Interconnection Customer]

Signed _____

Name (Printed): _____Title_____

Attachment A to Interconnection Facilities Study Agreement

Data To Be Provided by Interconnection Customer With the Interconnection Facilities Study Agreement

Provide location plan and simplified one-line diagram of the plant and station facilities. For staged projects, please indicate future generation, distribution circuits, etc. On the one-line diagram, indicate the generation capacity attached at each metering location. (Maximum load on CT/PT) .On the one-line diagram, indicate the location of auxiliary power. (Minimum load on CT/PT) Amps. One set of metering is required for each generation connection to the new ring bus or existing Electric Distribution Company station. Number of generation connections: _____Will an alternate source of auxiliary power be available during CT/PT maintenance? Yes _____No_____.Will a transfer bus on the generation side of the metering require that each meter set be designed for the total plant generation? Yes _____No _____(Please indicate on the one-line diagram). What type of control system or PLC will be located at the Generating Facility? _____.What protocol does the control system or PLC use? _____ .Please provide a 7.5-minute quadrangle map of the site. Indicate the plant, station, distribution line, and property lines. Physical dimensions of the proposed interconnection station: _____.Bus length from generation to interconnection station: _____ .Line length from interconnection station to Electric Distribution Company's Electric Distribution System. _____.Tower number observed in the field. (Painted on tower leg)*: _____.Number of third party easements required for distribution lines*: _____.* To be completed in coordination with Electric Distribution Company. Is the Generating Facility located in Electric Distribution Company's service area? Yes _____No _____If No, please provide name of local provider: _____

Please provide the following proposed schedule dates:

Begin Construction Date: _____

Generator step-up transformers receive back feed power Date: _____

Generation Testing Date: _____

Commercial Operation Date: _____

Appendix 6
Certificate of Completion

Installation Information Check if owner-installed ☐

Interconnection Customer: _____Contact Person:_____

Mailing Address: _____

Location of Small Generator Facility (if different from above):

_____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Electrician:

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

License number: _____

Date Interconnection Agreement approved by the Company: _____

Application ID number: _____

Electrical Inspection:

The system has been installed and inspected in compliance with the local Building/Electrical Code of

_____

(Appropriate governmental authority)

Signed (Local Electrical Wiring Inspector, or attach signed electrical inspection):

_____

(Note: Local procedures may differ on how to process approvals from local electric inspection officials)

Name (printed): _____

Date: _____

Person/Entity Installing The Small Generation Facility:

Name:_____

Company:_____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

As a condition of interconnection you are required to send/fax/e-mail a copy of this form along with a copy of the signed electrical permit to (insert Company's name below):

Name: _____

Company: _____

Mail 1:_____

Mail 2:_____

City, State ZIP: _____

Phone_____

E-mail_____

Fax No.: _____

Electric Distribution Company (EDC) waives Witness Test? Yes ☐ No ☐

EDC Signature: _____ Title: _____ Date: _____

Final Approval of Interconnection Agreement

The Certificate of Completion has been received and final approval to interconnect the Small Generation Small Generator Facility is granted under the Standard Small Generator Interconnection Procedures.

EDC Signature: _____ Title: _____ Date: _____

Appendix 7
STANDARD AGREEMENT FOR INTERCONECTION OF SMALL GENERATOR FACILITIES WITH A CAPACITY GREATER THAN 10 kVA BUT LESS THAN OR EQUAL TO 10 MVA

This Agreement is made and entered into this ___ day of _____ by and between _____, a _____ organized and existing under the laws of the State of _____, (''Interconnection Customer,'') and _____, a _____, existing under the laws of the State of _____, (''EDC''). Interconnection Customer and EDC each may be referred to as a ''Party,'' or collectively as the ''Parties.''

Recitals:

Whereas, Interconnection Customer is proposing to develop a Small Generator Facility, or generating capacity addition to an existing Small Generator Facility, consistent with the Interconnection Request completed by Interconnection Customer on _____; and

Whereas, Interconnection Customer desires to interconnect the Small Generator Facility with EDC's Electric Distribution System.

Now, therefore, in consideration of and subject to the mutual covenants contained herein, the Parties agree as follows:

Article 1. Scope and Limitations of Agreement

1.1 This Agreement shall be used for all approved Level 2, Level 3 and Level 3A Interconnection Requests according to the procedures set forth in the Standard Small Generator Interconnection Procedures.

1.2 This Agreement governs the terms and conditions under which the Small Generator Facility will interconnect to, and operate in Parallel with, EDC's Electric Distribution System.

1.3 This Agreement does not constitute an agreement to purchase or deliver the Interconnection Customer's power.

1.4 Nothing in this Agreement is intended to affect any other agreement between EDC and the Interconnection Customer. However, in the event that the provisions of this agreement are in conflict with the provisions of other EDC tariffs, the EDC tariff shall control.

1.5 Responsibilities of the Parties

1.5.1 The Parties shall perform all obligations of this Agreement in accordance with all Applicable Laws and Regulations, Operating Requirements, and Good Utility Practice.

1.5.2 The Interconnection Customer shall construct, interconnect, operate and maintain its Small Generator Facility, and construct, operate, and maintain its Interconnection Equipment in accordance with the

applicable manufacturer's recommended maintenance schedule, in accordance with this Agreement, and with Good Utility Practice.

1.5.3 EDC shall construct, own, operate, and maintain its Electric Distribution System and Interconnection Facilities in accordance with this Agreement, and with Good Utility Practice.

1.5.4 The Interconnection Customer agrees to construct its facilities or systems in accordance with applicable specifications that meet or exceed those provided by PJM's Small Generator Technical Requirements and Standards, the National Electrical Code, National Electrical Safety Code, the American National Standards Institute, IEEE, Underwriters Laboratories, any Operating Requirements in effect at the time of construction, and other applicable national and State codes and standards. The Interconnection Customer agrees to design, install, maintain, and operate its Small Generator Facility so as to reasonably minimize the likelihood of a disturbance adversely affecting or impairing the Electric Distribution System or equipment of the EDC.

1.5.5 Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for the facilities that it now or subsequently may own unless otherwise specified in the Attachments to this Agreement. Each Party shall be responsible for the safe installation, maintenance, repair and condition of their respective lines and appurtenances on their respective sides of the Point of Interconnection.

1.6 Parallel Operation Obligations

Once the Small Generator Facility has been authorized to commence parallel operation, the Interconnection Customer shall abide by all written rules and procedures developed by the EDC which pertain to the Parallel operation of the Small Generator Facility, copies of which are provided in Attachment 4 of this Agreement.

1.7 Metering

The Interconnection Customer shall be responsible for the cost of the purchase, installation, operation, maintenance, testing, repair, and replacement of metering and data acquisition equipment specified in Attachments 2 and 3 of this Agreement.

1.8 Reactive Power

The Interconnection Customer shall design its Small Generator Facility to maintain a composite power delivery at continuous rated power output at the Point of Common Coupling at a power factor within the range of 0.95 leading to 0.95 lagging. EDC may also require the Interconnection Customer to follow a voltage or VAR schedule applicable to similarly situated generators in the control area on a comparable basis and which shall be clearly specified in Attachment 4. Under no circumstance shall these additional requirements for reactive power support exceed the normal operating capabilities of the Small Generator Facility.

1.9 Capitalized Terms

Capitalized terms used herein shall have the meanings specified in the Glossary of Terms in Attachment 1 or the body of this Agreement.

Article 2. Inspection, Testing, Authorization, and Right of Access

2.1 Equipment Testing and Inspection

The Interconnection Customer shall test and inspect its Small Generator Facility and Interconnection Facilities prior to interconnection, and in accordance with the PJM Small Generator Technical Requirements and Standards. The Interconnection Customer shall not operate its Small Generator Facility in Parallel with EDC's Electric Distribution System without prior written authorization by the EDC as provided for in 2.1.1.

2.1.1 Prior to Parallel Operation, the Interconnection Customer shall provide the EDC a completed Certificate of Completion provided in Appendix 6. Within ten (10) Business Days after receipt of the Certificate of Completion, the EDC may conduct a Witness Test. The Witness Test shall be conduced only upon reasonable notice and at a mutually convenient time within the 10-day period. If the EDC does not conduct the Witness Test within 10 Business Days or within the time otherwise mutually agreed to by the Parties, the Witness Test is deemed waived. If the Witness Test is successful or alternatively if the Witness Test is waived, the EDC shall affix an authorized signature to the Certificate of Completion and return it to the Interconnection Customer approving the interconnection and authorizing Parallel Operation. Such authorization shall not be unreasonably withheld, conditioned, or delayed.

2.1.2 If the Witness Test is not successful, the EDC shall have the right to disconnect the Small Generator Facility until such time as changes are made to address the deficiencies identified tin the Witness Test and another Witness Test can be scheduled.

2.1.3 To the extent that the Interconnection Customer decides to conduct interim testing of the Small Generator Facility prior to the Witness Test, it may request that the EDC observe these tests and that these tests be deleted from the final Witness Test. The EDC may, at its own expense, send qualified personnel to the Small Generator Facility to observe such interim testing.

2.2 Right of Access

The EDC shall have access to the disconnect switch and metering equipment of the Small Generator Facility at all times. The EDC shall provide reasonable notice to the customer when possible prior to using its right of access.

Article 3. Effective Date, Term, Termination, and Disconnection

3.1 Effective Date

This Agreement shall become effective upon execution by the Parties.

3.2 Term of Agreement

This Agreement shall become effective on the Effective Date and shall remain in effect for a period of ten years from the Effective Date or such other longer period as the Interconnection Customer may request and shall be automatically renewed for each successive one-year period thereafter, unless terminated earlier in accordance with Article 3.3 of this Agreement.

3.3 Termination

No termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination.

3.3.1 The Interconnection Customer may terminate this Agreement at any time by giving the EDC 20 Business Days written notice.

3.3.2 Either Party may terminate this Agreement after Default pursuant to Article 6.6.

3.3.3 Upon termination of this Agreement, the Small Generator Facility will be disconnected from the EDC's Electric Distribution System. The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of the termination.

3.3.4 This provisions of this Article shall survive termination or expiration of this Agreement.

3.4 Temporary Disconnection

The EDC may temporarily disconnect the Small Generator Facility from its Electric Distribution System for so long as reasonably necessary in the event one or more of the following conditions or events occurs:

3.4.1 Emergency Conditions—"Emergency Condition" shall mean a condition or situation: (1) that in the judgment of the Party making the claim is imminently likely to endanger life or property; or (2) that, in the case of the EDC, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect

on the security of, or damage to the Electric Distribution System, the EDC's Interconnection Facilities or (3) that, in the case of the Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Small Generator Facility or the Interconnection Equipment . Under Emergency Conditions, the EDC or the Interconnection Customer may immediately suspend interconnection service and temporarily disconnect the Small Generator Facility. The EDC shall notify the Interconnection Customer promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Interconnection Customer's operation of the Small Generator Facility. The Interconnection Customer shall notify the EDC promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect EDC's Electric Distribution System. To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of both Parties' facilities and operations, its anticipated duration, and the necessary corrective action.

3.4.2 Routine Maintenance, Construction, and Repair – the EDC may interrupt interconnection service or curtail the output of the Small Generator Facility and temporarily disconnect the Small Generator Facility from the EDC's Electric Distribution System when necessary for routine maintenance, construction, and repairs on EDC's Electric Distribution System. The EDC shall provide the Interconnection Customer with five Business Days notice prior to such interruption. The EDC shall use reasonable efforts to coordinate such reduction or temporary disconnection with the Interconnection Customer.

3.4.3 Forced Outages - During any forced outage, the EDC may suspend interconnection service to effect immediate repairs on the EDC's Electric Distribution System. The EDC shall use reasonable efforts to provide the Interconnection Customer with prior notice. If prior notice is not given, the EDC shall, upon request, provide the Interconnection Customer written documentation after the fact explaining the circumstances of the disconnection.

3.4.4 Adverse Operating Effects – the EDC shall provide the Interconnection Customer with a written notice of its intention to disconnect the Small Generator Facility if, based on Good Utility Practice, the EDC determines that operation of the Small Generator Facility will likely cause disruption or deterioration of service to other customers served from the same electric system, or if operating the Small Generator Facility could cause damage to the

EDC's Electric Distribution System. Supporting documentation used to reach the decision to disconnect shall be provided to the Interconnection Customer upon request. The EDC may disconnect the Small Generator Facility if, after receipt of the notice, the Interconnection Customer fails to remedy the adverse operating effect within a reasonable time which shall be at least five Business Days from the date the Interconnection Customer receives the EDC's written notice supporting the decision to disconnect, unless Emergency Conditions exist in which case the provisions of Article 3.4.1 apply.

3.4.5 Modification of the Small Generator Facility - The Interconnection Customer must receive written authorization from the EDC before making any change to the Small Generator Facility that may have a material impact on the safety or reliability of the Electric Distribution System. Such authorization shall not be unreasonably withheld. Modifications shall be done in accordance with Good Utility Practice. If the Interconnection Customer makes such modification without the EDC's prior written authorization, the latter shall have the right to temporarily disconnect the Small Generator Facility.

3.4.6 Reconnection - The Parties shall cooperate with each other to restore the Small Generator Facility, Interconnection Facilities, and EDC's Electric Distribution System to their normal operating state as soon as reasonably practicable following a temporary disconnection.

Article 4. Cost Responsibility for Interconnection Facilities and Distribution Upgrades

4.1 Interconnection Facilities

4.1.1 The Interconnection Customer shall pay for the cost of the Interconnection Facilities itemized in Attachment 2 of this Agreement. If a Facilities Study was performed, the EDC shall identify its Interconnection Facilities necessary to safely interconnect the Small Generator Facility with the EDC's Electric Distribution System, the cost of those facilities, and the time required to build and install those facilities.

4.1.2 The Interconnection Customer shall be responsible for its share of all reasonable expenses, including overheads, associated with (1) owning, operating, maintaining, repairing, and replacing its Interconnection Equipment, and (2) operating, maintaining, repairing, and replacing the EDC's Interconnection Facilities as set forth in Appendix 3 and Appendix 4.

4.2 Distribution Upgrades

The EDC shall design, procure, construct, install, and own any Distribution Upgrades. The actual cost of the Distribution Upgrades, including overheads, shall be directly assigned to the Interconnection Customer.

Article 5. Billing, Payment, Milestones, and Financial Security

5.1 Billing and Payment Procedures and Final Accounting

5.1.1 The EDC shall bill the Interconnection Customer for the design, engineering, construction, and procurement costs of EDC provided Interconnection Facilities and Distribution Upgrades contemplated by this Agreement as set forth in Appendix 3, on a monthly basis, or as otherwise agreed by the Parties. The Interconnection Customer shall pay each bill within 30 calendar days of receipt, or as otherwise agreed to by the Parties.

5.1.2 Within ninety (90) calendar days of completing the construction and installation of the EDC's Interconnection Facilities and Distribution Upgrades described in the Attachments 2 and 3 to this Agreement, the EDC shall provide the Interconnection Customer with a final accounting report of any difference between (1) the actual cost incurred to complete the construction and installation and the budget estimate provided to the Interconnection Customer and a written explanation for any significant variation. (2) the Interconnection Customer's previous deposit and aggregate payments to the EDC for such Interconnection Facilities and Distribution Upgrades. If the Interconnection Customer's cost responsibility exceeds its previous deposit and aggregate payments, the EDC shall invoice the Interconnection Customer for the amount due and the Interconnection Customer shall make payment to the EDC within thirty (30) calendar days. If the Interconnection Customer's previous deposit and aggregate payments exceed its cost responsibility under this Agreement, the EDC shall refund to the Interconnection Customer an amount equal to the difference within thirty (30) calendar days of the final accounting report.

5.2 Interconnection Customer Deposit

At least twenty (20) Business Days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of the EDC's Interconnection Facilities and Distribution Upgrades, the Interconnection Customer shall provide the EDC with a deposit equal to

50% of the cost estimated for its Interconnection Facilities prior to its beginning design of such facilities.

Article 6. Assignment, Liability, Indemnity, Force Majeure, Consequential Damages, and Default

6.1 Assignment

This Agreement may be assigned by either Party upon fifteen (15) Business Days prior written notice, and with the opportunity to object by the other Party. When required, consent to assignment shall not be unreasonably withheld; provided that:

6.1.1 Either Party may assign this Agreement without the consent of the other Party to any affiliate of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this Agreement;

6.1.2 The Interconnection Customer shall have the right to assign this Agreement, without the consent of the EDC, for collateral security purposes to aid in providing financing for the Small Generator Facility.,

6.1.3 Any attempted assignment that violates this Article is void and ineffective. Assignment shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. An assignee is responsible for meeting the same obligations as the Interconnection Customer.

6.2 Limitation of Liability

Each Party's liability to the other Party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either Party be liable to the other Party for any indirect, special, consequential, or punitive damages, except as authorized by this Agreement.

6.3 Indemnity

6.3.1 This provision protects each Party from liability incurred to third parties as a result of carrying out the provisions of this Agreement. Liability under this provision is exempt from the general limitations on liability found in Article 6.2.

6.3.2 The Parties shall at all times indemnify, defend, and hold the other Party harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or failure to meet its obligations under this Agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

6.3.3 If an indemnified person is entitled to indemnification under this Article as a result of a claim by a third party, and the indemnifying Party fails, after notice and reasonable opportunity to proceed under this Article, to assume the defense of such claim, such indemnified person may at the expense of the indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

6.3.4 If an indemnifying party is obligated to indemnify and hold any indemnified person harmless under this Article, the amount owing to the indemnified person shall be the amount of such indemnified person's actual loss, net of any insurance or other recovery.

6.3.5 Promptly after receipt by an indemnified person of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in this Article may apply, the indemnified person shall notify the indemnifying party of such fact. Any failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the indemnifying party.

6.4 Consequential Damages

Neither Party shall be liable under any provision of this Agreement for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided, however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

6.5 Force Majeure

6.5.1 As used in this Article, a Force Majeure Event shall mean "any act of God, labor disturbance, act of the public enemy, war, acts of terrorism, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure Event does not include an act of negligence or intentional wrongdoing."

6.5.2 If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, the Party affected by the Force Majeure Event (Affected Party) shall promptly notify the other Party of the existence of the Force Majeure Event. The notification must specify in reasonable detail the circumstances of the Force Majeure Event, its expected duration, and the steps that the Affected Party is taking to mitigate the effects of the event on its performance, and if the initial notification was verbal, it should be promptly followed up with a written notification. The Affected Party shall keep the other Party informed on a continuing basis of developments relating to the Force Majeure Event until the event ends. The Affected Party will be entitled to suspend or modify its performance of obligations under this Agreement (other than the obligation to make payments) only to the extent that the effect of the Force Majeure Event cannot be reasonably mitigated. The Affected Party will use reasonable efforts to resume its performance as soon as possible.

6.6 Default

6.6.1 No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of a Force Majeure Event as defined in this Agreement, or the result of an act or omission of the other Party. Upon a Default, the non-defaulting Party shall give written notice of such Default to the defaulting Party. Except as provided in Article 6.6.2, the defaulting Party shall have 60 calendar days from receipt of the Default notice within which to cure such Default; provided however, if such Default is not capable of cure within 60 calendar days, the defaulting Party shall commence such cure within 20 calendar days after notice and continuously and diligently complete such cure within six months from receipt of the Default notice; and, if cured within such time, the Default specified in such notice shall cease to exist.

6.6.2 If a Default is not cured as provided for in this Article, or if a Default is not capable of being cured within the period provided for herein, the non-defaulting Party shall have the right to terminate this Agreement by written notice at any time until cure occurs, and be relieved of any further obligation hereunder and, whether or not that Party terminates this Agreement, to recover from the defaulting Party all amounts due hereunder, plus all other damages and remedies to which it is entitled at law or in equity. The provisions of this Article will survive termination of this Agreement.

Article 7. Insurance

The Interconnection Customer is not required to provide general liability insurance coverage as part of this Agreement, or any other EDC requirement. Due to the potential risk of incurring damages, it is recommended that the Interconnection Customer protect itself with liability insurance. Paragraphs 6.2, 6.3 and 6.4 of this Agreement contain provisions related to liability, indemnification and consequential damages. and should be carefully considered by the Interconnection Customer.

FE Comment: FE believes that insurance should be required on larger facilities, particularly those employing interconnected rotating equipment. Many jurisdictions require varying amounts of insurance based on level of generation.

Article 8. Dispute Resolution

Each Party agrees to attempt to resolve all disputes regarding the provisions of these interconnection procedures promptly, equitably and in a good faith manner.

Article 9. Miscellaneous

9.1 Governing Law, Regulatory Authority, and Rules

The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of _____, without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

9.2 Amendment

The Parties may amend this Agreement by a written instrument duly executed by both Parties.

9.3 No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

9.4 Waiver

9.4.1 The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

9.4.2 Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this Agreement. Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from EDC. Any waiver of this Agreement shall, if requested, be provided in writing.

9.5 Entire Agreement

This Agreement, including all Attachments, constitutes the entire Agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Agreement. There are no other agreements, representations, warranties, or covenants which constitute any part of the consideration for, or any condition to, either Party's compliance with its obligations under this Agreement.

9.6 Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

9.7 No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to

enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

9.8 Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

9.9 Environmental Releases

Each Party shall notify the other Party, first orally and then in writing, of the release any hazardous substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Small Generator Facility or the Interconnection Facilities, each of which may reasonably be expected to affect the other Party. The notifying Party shall (1) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than 24 hours after such Party becomes aware of the occurrence, and (2) promptly furnish to the other Party copies of any publicly available reports filed with any governmental authorities addressing such events.

9.10 Subcontractors

Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

9.10.1 The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall the EDC be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under this Agreement. Any applicable obligation imposed by this Agreement upon the

hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

9.10.2 The obligations under this Article will not be limited in any way by any limitation of subcontractor's insurance.

Article 10. Notices

10.1 General

Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given if delivered in person, delivered by recognized national courier service, or sent by first class mail, postage prepaid, to the person specified below:

If to Interconnection Customer:

Interconnection Customer: _____

Attention: _____

Address: _____

City: _____ State:_____ Zip:_____

Phone: _____ Fax: _____ E-mail_____

If to EDC:

EDC_____

Attention: _____

Address: _____

City: _____ State:_____ Zip:_____

Phone: _____ Fax: _____E-mail_____

10.2 Billing and Payment

Billings and payments shall be sent to the addresses set out below:

Interconnection Customer: _____

Attention: _____

Address: _____

City: _____ State:_____ Zip:_____

Interconnection Customer: _____

Attention: _____

Address: _____

City: _____ State:_____ Zip:_____

10.3 Designated Operating Representative

The Parties may also designate operating representatives to conduct the communications which may be necessary or convenient for the administration of this Agreement. This person will also serve as the point of contact with respect to operations and maintenance of the Party's facilities.

Interconnection Customer's
Operating representative:_____

Attention: _____

Address: _____

City: _____ State:_____ Zip:_____

Phone: _____ Fax: _____E-Mail_____

EDC's Operating Representative: _____

Attention: _____

Address: _____

City: _____ State:_____ Zip:_____

Phone: _____ Fax: _____

10.4 Changes to the Notice Information

Either Party may change this notice information by giving five Business Days written notice prior to the effective date of the change.

Article 11. Signatures

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For EDC:

Name: _____

Title: _____

Date: _____

For the Interconnection Customer

Name: _____

Title: _____

Date: _____

Attachment 1

Glossary of Terms

Applicant – A person who has submitted an Interconnection Request to interconnect a Small Generator Facility to the EDC's Electric Distribution System, sometimes also referred to as the "Interconnection Customer".

Applicable Laws and Regulations – All duly promulgated applicable federal, State and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority.

Business Day – Monday through Friday, excluding Federal Holidays.

Default – The failure of a breaching Party to cure its Breach under the terms of this Interconnection Agreement.

Distribution Upgrades – The additions, modifications, and upgrades to the EDC's Electric Distribution System at or beyond the Point of Common Coupling to facilitate the interconnection of the Small Generator Facility. Distribution Upgrades do not include Interconnection Facilities.

EDC –**Electric Distribution Company** or **EDC** means the electric utility entity that owns the Electric Distribution System.

Electric Distribution System – The EDC facilities and equipment used to deliver electricity from transformation points on the Transmission System to points of connection at a Interconnection Customer's premises.

Facilities Study – An engineering study conducted by the EDC to determine the required modifications to the EDC's Electric Distribution System, including the cost and the time require to build and install such modifications, as necessary to accommodate an Interconnection Application.

Force Majeure - means any act of God, labor disturbance, act of the public enemy, war, acts of terrorism, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control.

Good Utility Practice – Has the same meaning as assigned to this term in the Amended and Restated Operating Agreement of the PJM Interconnection (April 2005), 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 April 28, 2005, the Operating Agreement defines this term as "any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the

relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region."

Governmental Authority – Any federal, State, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include the Interconnection Customer, EDC or any affiliate thereof.

IEEE Standards – The standards published by the Institute of Electrical and Electronics Engineers, available at www.ieee.org.

Interconnection Agreement or Agreement – This agreement between the Interconnection Customer-generator and the EDC, which governs the connection of the Small Generator Facility to EDC's Electric Distribution System, as well as the ongoing operation of the Small Generator Facility after it is connected to the EDC's system.

Interconnection Customer – Any entity that proposes to interconnect its Small Generator Facility with the EDC's Electric Distribution System.

Interconnection Equipment – 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.

Interconnection Facilities – EDC's interconnection equipment and the Interconnection Customer's Interconnection Equipment. Collectively, Interconnection Facilities include all facilities and equipment between the Small Generator Facility and the Point of Common Coupling, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Small Generator Facility to the EDC's Electric Distribution System. Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades.

Interconnection Request – The Interconnection Customer's request, in accordance with the Standard Small Generator Interconnection Procedures,, to interconnect a new Small Generator Facility, or to increase the capacity of an

existing Small Generator Facility that is interconnected with the EDC's Electric Distribution System.

Operating Requirements – Any operating and technical requirements that may be applicable due to PJM or EDC's requirements, including those set forth in this Interconnection Agreement.

Parallel Operation or **Parallel** occurs when a Small Generator Facility is connected electrically to the Electric Distribution System and the potential exists for electricity to flow from the Small Generator Facility to the Electric Distribution System. This may be contrasted with a stand-alone generator that operates isolated from the Electric Distribution System.

Party or Parties – EDC, Interconnection Customer or any combination of the two.

PJM Interconnection LLC or **PJM** means FERC approved regional transmission organization that operates the electric transmission system.

PJM Small Generator Technical Requirements and Standards means the most current version of PJM's interconnection technical requirements applicable to small generators10 MVA or smaller. A copy of these requirements, effective as of August 1, 2005 are provided in Appendix 5. These technical requirements are also available at www.pjm.com .

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. IEEE Standard 1547 Section 3.0 defined this term as "the point in the interconnection of a Small Generator Facility with an Electric Distribution System at which the harmonic limits are applied."

Point of Interconnection means the point where the Interconnection Facilities connect to the Electric Distribution Company's Electric Distribution System.

Small Generator Facility means the equipment used by an Interconnection Customer to generate, or store electricity. A Small Generator Facility has an Electric Nameplate Capacity rating of 10 MVA or less and typically includes an electric generator, prime mover, and the Interconnection Equipment required to safely interconnect with the Electric Distribution System.

Standard Small Generator Interconnection Procedures means the most current version of the procedures for interconnecting Small Generator Facilities adopted by the state or public utility commission for the location in which the Small Generator Facility is to be located.

Transmission Owner – Has the same meaning as EDC

Transmission System – The facilities owned, controlled or operated by EDC or another Transmission Owner that are used to provide transmission service under the PJM Open Access Transmission Tariff.

Witness Test means the EDC's interconnection installation evaluation required by IEEE 1547 Section 5.3 and the EDC's witnessing of the commissioning test required by IEEE 1547 Section 5.4. For interconnection equipment that has not been Certified, the Witness Test shall also include the witnessing by the EDC of the on-site design tests as required by IEEE 1547 Section 5.1 and witnessing by the EDC of production tests required by IEEE 1547 Section 5.2. All tests witnessed by the EDC are to be performed in accordance with IEEE 1547.1

Attachment 2

One-line Diagram Depicting the Small Generator Facility, Interconnection Facilities, Metering Equipment, and Upgrades

Attachment 3

Description, Costs and Time Required to Build and Install EDC's Interconnection Facilities

EDC's Interconnection Facilities shall be itemized and a best estimate of itemized costs, including overheads, shall be provided based on the Facilities Study.

Also, a best estimate for the time required to build and install EDC's Interconnection Facilities will be provided based on the Facilities Study.

Attachment 4

Additional Operating Requirements for Small Generator Facilities Operating in Parallel

Attachment 5

PJM Technical Requirements

See www.pjm.com

http://www.pjm.com/committees/tac/downloads/20041209-item-4-attachment-h-h-1-manual-14b.pdf

Attachment 6
Certificate of Completion

Installation Information Check if owner-installed ☐

Interconnection Customer: _____Contact Person:_____

Mailing Address: _____

Location of Small Generator Facility (if different from above):

_____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

Electrician:

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

License number: _____

Date Interconnection Agreement approved by the Company: _____

Application ID number: _____

Electrical Inspection:

The system has been installed and inspected in compliance with the local Building/Electrical Code of

_____
(Appropriate governmental authority)

Signed (Local Electrical Wiring Inspector, or attach signed electrical inspection):

_____
(Note: Local procedures may differ on how to process approvals from local electric inspection officials)

Name (printed): _____

Date: _____

Person/Entity Installing The Small Generation Facility:

Name:_____

Company:_____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Facsimile Number: _____ E-Mail Address: _____

As a condition of interconnection you are required to send/fax/e-mail a copy of this form along with a copy of the signed electrical permit to (insert Company's name below):

Name: _____

Company: _____

Mail 1:_____

Mail 2:_____

City, State ZIP: _____

Phone_____

E-mail_____

Fax No.: _____

Electric Distribution Company (EDC) waives Witness Test? Yes ☐ No ☐

EDC Signature: _____ Title: _____ Date: _____

Final Approval of Interconnection Agreement

The Certificate of Completion has been received and final approval to interconnect the Small Generation Small Generator Facility is granted under the Standard Small Generator Interconnection Procedures.

EDC Signature: _____ Title: _____ Date: _____

Note: This version of Appendix 7 contains "blueline" comments form PA Small Generator Coalition/SEIA

STANDARD AGREEMENT FOR INTERCONECTION OF SMALL GENERATOR FACILITIES WITH A CAPACITY GREATER THAN 10KVA BUT LESS THAN OR EQUAL TO 10 MVA

This Agreement is made and entered into this ___ day of _____ by and between _____, a _____ organized and existing under the laws of the State of _____, (''Interconnection Customer,'') and _____, a _____, existing under the laws of the State of _____, (''EDC''). Interconnection Customer and EDC each may be referred to as a ''Party,'' or collectively as the ''Parties.''

Recitals:

Whereas, Interconnection Customer is proposing to develop a Small Generator Facility, or generating capacity addition to an existing Small Generator Facility, consistent with the Interconnection Request completed by Interconnection Customer on _____; and

Whereas, Interconnection Customer desires to interconnect the Small Generator Facility with EDC's Electric Distribution System.

Now, therefore, in consideration of and subject to the mutual covenants contained herein, the Parties agree as follows:

Article 1. Scope and Limitations of Agreement

1.1 This Agreement shall be used for all approved Level 2, Level 3 and Level 3A Interconnection Requests according to the procedures set forth in the Standard Small Generator Interconnection Procedures.

1.2 This Agreement governs the terms and conditions under which the Small Generator Facility will interconnect to, and operate in parallel with, EDC's Electric Distribution System.

1.3 This Agreement does not constitute an agreement to purchase or deliver the Interconnection Customer's power.

1.4 Nothing in this Agreement is intended to affect any other agreement between EDC and the Interconnection Customer.

1.5 Responsibilities of the Parties

1.5.1 The Parties shall perform all obligations of this Agreement in accordance with all Applicable Laws and Regulations.

1.5.2 The Interconnection Customer shall construct, interconnect, operate and maintain its Small Generator Facility, and construct, operate, and maintain its Interconnection Equipment in accordance with the applicable manufacturer's recommended maintenance schedule, in accordance with this Agreement,

1.5.3 EDC shall construct, own, operate, and maintain its Electric Distribution System and Interconnection Facilities in accordance with this Agreement, IEEE 1547 standards, the National Electric Safety Code, and other applicable standards promulgated by [[state commission]]..

1.5.6 The Interconnection Customer agrees to construct its facilities or systems in accordance with applicable specifications that meet or exceed those provided by , the National Electrical Code, the American National Standards Institute, IEEE, Underwriters Laboratories, and other applicable national and State codes and standards. The Interconnection Customer and Utility agrees to design, install, maintain, and operate their facilities so as to reasonably minimize the likelihood of a disturbance adversely affecting or impairing the system or equipment of the other party's facility or any Affected Systems.

1.5.7 Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for the facilities that it now or subsequently may own unless otherwise specified in the Attachments to this Agreement. Each Party shall be responsible for the safe installation, maintenance, repair and condition of their respective lines and appurtenances on their respective sides of the Point of Interconnection. Each Party, shall provide Interconnection Facilities and other repairs and facilities that adequately protect the other Parties facilities, personnel, and other persons from damage and injury. The allocation of responsibility for the design, installation, operation, maintenance and ownership of Interconnection Facilities shall be delineated in the Attachments to this Agreement.

For Small Generator Facilities interconnected under Level 3, the SGF shall abide by the operating requirements of the System Operator.

1.7 Metering

As required by tariff governing sale or exchange of power

1.9 Capitalized Terms

Capitalized terms used herein shall have the meanings specified in the Glossary of Terms in Attachment 1 or the body of this Agreement.

Article 2. Inspection, Testing, Authorization, and Right of Access

2.2 Equipment Testing and Inspection [[addressed in Interconnection procedures]]

The Interconnection Customer shall test and inspect its Small Generator Facility and Interconnection Facilities prior to interconnection in accordance with IEEE Standards. The Interconnection Customer shall not operate its Small Generator Facility in Parallel with EDC's Electric Distribution System without prior written authorization by the EDC as provided for in 2.1.1.

2.2.1 Prior to Parallel Operation, the Interconnection Customer shall provide the EDC a completed Certificate of Completion provided in Appendix [6]. Within ten (10) Business Days after receipt of the Certificate of Completion, the EDC may conduct a Witness Test. The Witness Test shall be conduced only upon reasonable notice and at a mutually convenient time within the 10-day period. If the EDC does not conduct the Witness Test within 10 Business Days or within the time otherwise mutually agreed to by the Parties, the Witness Test is deemed waived. If the Witness Test is

successful or alternatively if the Witness Test is waived, the EDC shall affix an authorized signature to the Certificate of Completion and return it to the Interconnection Customer approving the interconnection and authorizing Parallel Operation. Such authorization shall not be unreasonably withheld, conditioned, or delayed. [[check for redundancy with the IP]]

2.2.2 To the extent that the Interconnection Customer decides to conduct interim testing of the Small Generator Facility prior to the Witness Test, it may request that the EDC observe these tests and that these tests be deleted from the final Witness Test. The EDC may, at its own expense, send qualified personnel to the Small Generator Facility to observe such interim testing.

2.2 Right of Access

The EDC shall have access to the Customer's premises for any reasonable purpose in connection with the performance of the obligations imposed on it by this Agreement or if necessary to meet its legal obligation to provide service to other customers.

Article 3. Effective Date, Term, Termination, and Disconnection

3.1 Effective Date

This Agreement shall become effective upon execution by the Parties.

3.2 Term of Agreement

This Agreement shall become effective on the Effective Date and shall remain in effect perpetually, unless terminated earlier in accordance with Article 3.3 of this Agreement.

3.3 Termination

No termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination..

3.3.1 The Interconnection Customer may terminate this Agreement at any time by giving EDC 20 Business Days written notice.

3.3.2 Either Party may terminate this Agreement after Default pursuant to Article 6.6.

3.3.3 Upon termination of this Agreement, the Small Generator Facility will be disconnected from EDC's Electric Distribution System. The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of the termination.

3.3.4 The following provisions of this Article shall survive termination or expiration of this Agreement: [[List]].

3.4 Temporary Disconnection

The EDC may temporarily disconnect the Small Generator Facility from its Electric Distribution System in the event one or more of the following conditions or events occurs:

3.4.1 Emergency Conditions—"Emergency Condition" shall mean a condition or situation: (1) that in the judgment of the Party making the claim is imminently likely to endanger life or property; or (2) that, in the case of EDC, is imminently likely (as determined in a non-discriminatory manner) to cause a

material adverse effect on the security of, or damage to the Electric Distribution System, EDC's Interconnection Facilities or (3) that, in the case of the Interconnection Customer, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Small Generator Facility or the Interconnection Equipment . Under Emergency Conditions, EDC or the Interconnection Customer may immediately suspend interconnection service and temporarily disconnect the Small Generator Facility. EDC shall notify the Interconnection Customer promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Interconnection Customer's operation of the Small Generator Facility. The Interconnection Customer shall notify EDC promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect EDC's Electric Distribution System. To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of both Parties' facilities and operations, its anticipated duration, and the necessary corrective action.

3.4.2 Routine Maintenance, Construction, and Repair - EDC may interrupt interconnection service or curtail the output of the Small Generator Facility and temporarily disconnect the Small Generator Facility from EDC's Electric Distribution System when necessary for routine maintenance, construction, and repairs on EDC's Electric Distribution System. EDC shall provide the Interconnection Customer with five Business Days notice prior to such interruption. EDC shall use reasonable efforts to coordinate such reduction or temporary disconnection with the Interconnection Customer.

3.4.3 Forced Outages - During any forced outage, EDC may suspend interconnection service to effect immediate repairs on EDC's Electric Distribution System. EDC shall use reasonable efforts to provide the Interconnection Customer with prior notice. If prior notice is not given, EDC shall, upon request, provide the Interconnection Customer written documentation after the fact explaining the circumstances of the disconnection.

3.4.4 Adverse Operating Effects - EDC shall provide the Interconnection Customer with a written notice of its intention to disconnect the Small Generator Facility if, based on IEEE 1547, the EDC determines that operation of the Small Generator Facility will likely create an adverse operating condition including but not limited to: causing disruption or deterioration of service to other customers served from the same electric system; or causing damage to EDC's Electric Distribution System. Supporting documentation used to reach the decision to disconnect shall be provided to the Interconnection Customer upon request. EDC may disconnect the Small Generator Facility if, after receipt of the notice, the Interconnection Customer fails to remedy the adverse operating condition within a reasonable time which shall be at least five Business Days from the date the Interconnection Customer receives the EDC's written notice supporting the decision to disconnect, unless Emergency Conditions exist in which case the provisions of Article 3.4.1 apply. The EDC may continue to leave the Customer-generator disconnected until the adverse operating condition has been corrected.

3.4.5 Modification of the Small Generator Facility - The Interconnection Customer must receive written authorization from EDC before making any material change to the Small Generator Facility that may have a adverse impact on the safety or reliability of the Electric Distribution System. Such authorization shall not be unreasonably withheld. Modifications shall be done in accordance with the requirements of IEEE 1547 and other applicable standards. If the Interconnection Customer makes such modification without EDC's prior written authorization, the latter shall have the right to disconnect the Small Generator Facility until such modifications are reversed or brought into compliance with IEEE 1547 and other applicable standards..

3.4.6 Reconnection - The Parties shall cooperate with each other to restore the Small Generator Facility, Interconnection Facilities, and EDC's Electric Distribution System to their normal operating state as soon as reasonably practicable following any disconnection pursuant to this Section.

Article 4. Cost Responsibility for Interconnection Facilities and Distribution Upgrades

4.1 Interconnection Facilities

4.1.1 The Interconnection Customer-generator shall pay for the cost of the Interconnection Facilities itemized in Attachment 2 of this Agreement under Level 3 or Additional Review under Level 2. If a Facilities Study was performed, EDC shall identify its Interconnection Facilities necessary to safely interconnect the Small Generator Facility with EDC's Electric Distribution System, the cost of those facilities, and the time required to build and install those facilities.

4.1.2 The Interconnection Customer shall be responsible for its share of all reasonable expenses, including overheads, associated with (1) owning, operating, maintaining, repairing, and replacing its Interconnection Equipment, and (2) operating, maintaining, repairing, and replacing EDC's Interconnection Facilities as set forth in Appendix 3 and Appendix 4.

4.2 Distribution Upgrades

EDC shall design, procure, construct, install, and own any Distribution Upgrades. The actual cost of the Distribution Upgrades, including overheads, shall be directly assigned to the Interconnection Customer. The Customer-generator is entitled to financial contribution from any other customer's who may in the future utilize the upgrades paid for by the Customer-generator. Such contribution shall be governed by the rules, regulations and decisions of the [[state commission]]..

Article 5. Billing, Payment, Milestones, and Financial Security

5.1 Billing and Payment Procedures and Final Accounting Level 2 and Level 3 Additional Review

5.1.1 EDC shall bill the Interconnection Customer for the design, engineering, construction, and procurement costs of EDC provided Interconnection Facilities and Distribution Upgrades contemplated by this Agreement as set forth in Appendix 3, on a monthly basis, or as otherwise agreed by the Parties. The Interconnection Customer shall pay each bill within 30 calendar days of receipt, or as otherwise agreed to by the Parties.

5.1.2 Within ninety (90) calendar days of completing the construction and installation of EDC's Interconnection Facilities and Distribution Upgrades described in the Attachments 2 and 3 to this Agreement, EDC shall provide the Interconnection Customer with a final accounting report of any difference between (1) the actual cost incurred to complete the construction and installation and the budget estimate provided to the Interconnection Customer and a written explanation for any significant variation. (2) the Interconnection Customer's previous deposit and aggregate payments to EDC for such Interconnection Facilities and Distribution Upgrades. If the Interconnection Customer's cost responsibility exceeds its previous deposit and aggregate payments, EDC shall invoice the Interconnection Customer for the amount due and the Interconnection Customer shall make payment to EDC within thirty (30) calendar days. If the Interconnection Customer's previous deposit and aggregate payments exceed its cost responsibility under this Agreement, EDC shall refund to the Interconnection Customer an amount equal to the difference within thirty (30) calendar days of the final accounting report.

5.2 Interconnection Customer Deposit

At least twenty (20) Business Days prior to the commencement of the design, procurement, installation, or construction of a discrete portion of EDC's Interconnection Facilities and Distribution

Upgrades, the Interconnection Customer shall provide EDC with a deposit equal to 50% of the cost estimated for its Interconnection Facilities prior to its beginning design of such facilities provided the total cost is in excess of $1000.

Article 6. Assignment, Liability, Indemnity, Force Majeure, Consequential Damages, and Default

6.2 Assignment

This Agreement may be assigned by either Party upon fifteen (15) Business Days prior written notice, and with the opportunity to object by the other Party. When required, consent to assignment shall not be unreasonably withheld; provided that:

6.1.1 Either Party may assign this Agreement without the consent of the other Party to any affiliate (which shall include a merger or the Party with another entity) of the assigning Party with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the assigning Party under this Agreement;

6.1.2 The Interconnection Customer shall have the right to assign this Agreement, without the consent of EDC, for collateral security purposes to aid in providing financing for the Small Generator Facility. For systems that are integrated into the facilities, sale of the building or property will result in an automatic transfer of this agreement to the new owner.

6.1.3 Any attempted assignment that violates this Article is void and ineffective. Assignment shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof. An assignee is responsible for meeting the same obligations as the Interconnection Customer.

6.2 Limitation of Liability [[consider NARUC text here]]

Each Party's liability to the other Party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either Party be liable to the other Party for any indirect, special, consequential, or punitive damages, except as authorized by this Agreement.

6.3 Indemnity

6.3.1 This provision protects each Party from liability incurred to third parties as a result of carrying out the provisions of this Agreement. Liability under this provision is exempt from the general limitations on liability found in Article 6.2.

6.3.2 The Parties shall at all times indemnify, defend, and hold the other Party harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or failure to meet its obligations under this Agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

6.3.3 If an indemnified person is entitled to indemnification under this Article as a result of a claim by a third party, and the indemnifying Party fails, after notice and reasonable opportunity to proceed under this Article, to assume the defense of such claim, such indemnified person may at the expense of the indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

6.3.4 If an indemnifying party is obligated to indemnify and hold any indemnified person harmless under this Article, the amount owing to the indemnified person shall be the amount of such indemnified person's actual loss, net of any insurance or other recovery.

6.3.5 Promptly after receipt by an indemnified person of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in this Article may apply, the indemnified person shall notify the indemnifying party of such fact. Any failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the indemnifying party.

6.4 Liability for Damages [[redundant to 6.2]]

Neither Party shall be liable under any provision of this Agreement for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided, however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

6.5 Force Majeure

6.5.1 As used in this Article, a Force Majeure Event shall mean "any act of God, labor disturbance, act of the public enemy, war, acts of terrorism, insurrection, riot, fire, storm or flood, explosion, accidental breakage or overloading of machinery or equipment through no direct, indirect, or contributory act of a Party, any order, regulation or restriction imposed by

governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure Event does not include an act of negligence or intentional wrongdoing.

6.5.2 If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, the Party affected by the Force Majeure Event (Affected Party) shall promptly notify the other Party of the existence of the Force Majeure Event. The notification must specify in reasonable detail the circumstances of the Force Majeure Event, its expected duration, and the steps that the Affected Party is taking to mitigate the effects of the event on its performance, and if the initial notification was verbal, it should be promptly followed up with a written notification. The Affected Party shall keep the other Party informed on a continuing basis of developments relating to the Force Majeure Event until the event ends. The Affected Party will be entitled to suspend or modify its performance of obligations under this Agreement (other than the obligation to make payments) only to the extent that the effect of the Force Majeure Event cannot be reasonably mitigated. The Affected Party will use reasonable efforts to resume its performance as soon as possible.

6.6 Default

6.6.1 No Default shall exist where such failure to discharge an obligation (other than the payment of money) is the result of a Force Majeure Event as defined in this Agreement, or the result of an act or omission of the other Party. Upon a Default, the non-defaulting Party shall give written notice of such Default to the defaulting Party. Except as provided in Article 6.6.2, the defaulting Party shall have 60 calendar days from receipt of the Default notice within which to cure such Default; provided however, if such Default is not capable of cure within 60 calendar days, the defaulting Party shall commence such cure within 20 calendar days after notice and continuously and diligently complete such cure within six months from receipt of the Default notice; and, if cured within such time, the Default specified in such notice shall cease to exist.

6.6.2 If a Default is not cured as provided for in this Article, or if a Default is not capable of being cured within the period provided for herein, the non-defaulting Party shall have the right to terminate this Agreement by written notice at any time until cure occurs, and be relieved of any further obligation hereunder and, whether or not that Party terminates this Agreement, to recover from the defaulting Party all amounts due hereunder, plus all other damages and remedies to which it is entitled at law or in equity. The provisions of this Article will survive termination of this Agreement.

Article 7. Insurance

The Interconnection Customer is not required to provide general liability insurance coverage as part of this Agreement, or any other EDC requirement. It is recommended that the Interconnection Customer protect itself with liability insurance. Paragraphs 6.2, 6.3 and 6.4 of this Agreement contain provisions related to liability,

indemnification and consequential damages, and should be carefully considered by the Interconnection Customer.

Article 8. Dispute Resolution

Each Party agrees to attempt to resolve all disputes regarding the provisions of these interconnection procedures promptly, equitably and in a good faith manner.

8.1. For disputes related to the technical application of these rules, the PUC may from time to time designate a technical master for the resolution of such disputes. If the PUC has so designated, the parties shall use the technical master to resolve disputes related to interconnection and such resolution shall be binding on the parties. Costs for dispute resolution by the technical master, if any, shall be as directed by the technical master subject to review by the PUC.

8.2. The PUC may designate a Department of Energy national laboratory; college or university; or an approved FERC RTO with distribution system engineering expertise as the technical master. Should the FERC identify a national technical dispute resolution team, the PUC may designate said team as its technical master.

8.3. Process and legal disputes. See PUC dispute resolution or complaint procedures.

Article 9. Miscellaneous

9.1 Governing Law, Regulatory Authority, and Rules

The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of _____, without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

9.2 Amendment

The Parties may amend this Agreement by a written instrument duly executed by both Parties.

9.3 No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

9.4 Waiver

9.4.1 The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

9.4.3 Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, duty of this Agreement. Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from EDC. Any waiver of this Agreement shall, if requested, be provided in writing.

9.5 Entire Agreement

This Agreement, including all Attachments, constitutes the entire Agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Agreement. There are no other agreements, representations, warranties, or covenants which constitute any part of the consideration for, or any condition to, either Party's compliance with its obligations under this Agreement.

9.6 Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

9.7 No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

9.8 Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

9.9 Environmental Releases

Each Party shall notify the other Party, first orally and then in writing, of the release any hazardous substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Small Generator Facility or the Interconnection Facilities, each of which may reasonably be expected to affect the other Party. The notifying Party shall (1) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than 24 hours after such Party becomes aware of the occurrence, and (2) promptly furnish to the other Party copies of any publicly available reports filed with any governmental authorities addressing such events.

9.10 Subcontractors

Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

9.10.1 The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall EDC be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

9.10.2 The obligations under this Article will not be limited in any way by

any limitation of subcontractor's insurance.

Article 10. Notices

10.1 General

Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given if delivered in person, delivered by recognized national currier service, or sent by first class mail, postage prepaid, to the person specified below:

If to Interconnection Customer:

Interconnection Customer: _____

Attention: _____

Address: _____

City: _____ State:_____ Zip:_____

Phone: _____ Fax: _____ E-mail_____

If to EDC:

EDC_____

Attention: _____

Address: _____

City: _____ State:_____ Zip:_____

Phone: _____ Fax: _____E-mail_____

10.2 Billing and Payment

Billings and payments shall be sent to the addresses set out below:

Interconnection Customer: _____

Attention: _____

Address: _____

City: _____ State:_____
Zip:_____

Interconnection Customer:
_____

Attention: _____

Address:
_____

City: _____ State:_____
Zip:_____

10.3 Designated Operating Representative

The Parties may also designate operating representatives to conduct the communications which may be necessary or convenient for the administration of this Agreement. This person will also serve as the point of contact with respect to operations and maintenance of the Party's facilities.

Interconnection Customer's Operating Representative:_____

Attention: _____

Address:
_____

City: _____ State:_____ Zip:_____

Phone: _____ Fax: _____E-Mail_____

EDC's Operating Representative:
_____

Attention: _____

Address:
_____

City: _____ State:_____ Zip:_____

Phone: _____ *Fax:* _____

10.4 Changes to the Notice Information

Either Party may change this notice information by giving five Business Days written notice prior to the effective date of the change.

Article 11. Signatures

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For EDC:

Name: _____

Title: _____

Date: _____

For the Interconnection Customer

Name: _____

Title: _____

Date: _____

Attachment 1

Glossary of Terms

Applicant – A person who has submitted an Interconnection Request to interconnect a Small Generator Facility to EDC's Electric Distribution System, sometimes also referred to as the "Interconnection Customer".

Applicable Laws and Regulations – All duly promulgated applicable federal, State and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority.

Business Day – Monday through Friday, excluding Federal Holidays.

Default – The failure of a breaching Party to cure its Breach under the terms of this

Interconnection Agreement.

Distribution Upgrades – The additions, modifications, and upgrades to EDC's Electric Distribution System on the EDC side of the Point of Common Coupling to facilitate the interconnection of the Small Generator Facility. Distribution Upgrades do not include Interconnection Facilities.

EDC –**Electric Distribution Company** or **EDC** means the electric utility entity that owns the Electric Electric Distribution System.

Electric Distribution System – The EDC facilities and equipment used to deliver electricity from transformation points on the Transmission System to points of connection at a Interconnection Customer's premises.

Facilities Study – An engineering study conducted by EDC to determine the required modifications to EDC's Electric Distribution System, including the cost and the time require to build and install such modifications, as necessary to accommodate an Interconnection Application.

Force Majeure - means any act of God, labor disturbance, act of the public enemy, war, acts of terrorism, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control.

Governmental Authority – Any federal, State, local or other governmental regulatory or

administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include the Interconnection Customer, EDC or any affiliate thereof.

IEEE Standards – The standards published by the Institute of Electrical and Electronics Engineers, available at www.ieee.org.

Interconnection Agreement or Agreement – This agreement between the Interconnection Customer-generator and EDC, which governs the connection of the Small Generator Facility to EDC's Electric Distribution System, as well as the ongoing operation of the Small Generator Facility after it is connected to EDC's system.

Interconnection Customer – Any entity that proposes to interconnect its Small Generator Facility with EDC's Electric Distribution System.

Interconnection Equipment – A group of components connecting an electric generator with an electric 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.

Interconnection Facilities – EDC's interconnection equipment and the Interconnection Customer's Interconnection Equipment. Collectively, Interconnection Facilities include all facilities and equipment between the Small Generator Facility and the Point of Common Coupling, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Small Generator Facility to the EDC's Electric Distribution System. Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades.

Interconnection Request – The Interconnection Customer's request, in accordance with the Standard Small Generator Interconnection Procedures,, to interconnect a new Small Generator Facility, or to increase the capacity of an existing Small Generator Facility that is interconnected with EDC's Electric Distribution System.

Operating Requirements – Any operating and technical requirements that may be applicable due to PJM or EDC's real time requirements for operating the Transmission System or Distribution System, including those set forth in this

Interconnection Agreement. There are no Operating requirements on Customer-generators interconnected under Level 2 or 3a

Parallel Operation or **Parallel** occurs when a Small Generator Facility is connected electrically to the Electric Distribution System and the potential exists for electricity to flow from the Small Generator Facility to the Electric Distribution System. This may be contrasted with a stand-alone generator that operates isolated from the Electric Distribution System.

Party or Parties – EDC, Interconnection Customer or any combination of the two.

PJM Interconnection LLC or **PJM** means FERC approved regional transmission organization that operates the electric transmission system.

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. IEEE Standard 1547 Section 3.0 defined this term as "the point in the interconnection of a Small Generator Facility with an electric Electric Distribution System at which the harmonic limits are applied."

Point of Interconnection means the point where the Interconnection Facilities connect to the Electric Distribution Company's Electric Distribution System.

Small Generator Facility means the equipment used by an Interconnection Customer to generate, or store electricity. A Small Generator Facility has an Electric Nameplate Capacity rating of 10 MVA or less and typically includes an electric generator, prime mover, and the Interconnection Equipment required to safely interconnect with the Electric Distribution System.

Standard Small Generator Interconnection Procedures means the most current version of the procedures for interconnecting Small Generator Facilities adopted by the state or public utility commission for the location in which the Small Generator Facility is to be located.

Tariff – The EDC electric Tariff and its Standard Terms and Conditions as filed with the [[State Commission]], and as amended or supplemented from time to time, or any successor tariff.

Transmission Owner – Owner of the Transmission System.

Transmission System – The facilities owned, controlled or operated by an entity under the regulation of the Federal Energy Regulatory Commission and electrically interconnected with the Distribution System and that are used to provide transmission service under the PJM Open Access Transmission Tariff or the successors to PJM or the Federal Energy Regulatory Commission.

Witness Test means the EDC's interconnection installation evaluation required by IEEE 1547 Section 5.3 and the EDC's witnessing of the commissioning test required by IEEE 1547 Section 5.4. For interconnection equipment that has not been Certified, the Witness Test shall also include the witnessing by the EDC of the on-site design tests as required by IEEE 1547 Section 5.1 and witnessing by the EDC of production tests required by IEEE 1547 Section 5.2. All tests witnessed by the EDC are to be performed in accordance with IEEE 1547.1

Attachment 2

One-line Diagram Depicting the Small Generator Facility, Interconnection Facilities, Metering Equipment, and Upgrades

Attachment 3

Description, Costs and Time Required to Build and Install EDC's Interconnection Facilities

EDC's Interconnection Facilities shall be itemized and a best estimate itemized cost, including overheads, of the cost of its Interconnection Facilities will be provided from the Facilities Study.

Also, and a best estimate for the time required to build and install EDC's Interconnection Facilities will be provided from the Facilities Study.

Attachment 4

Additional Operating Requirements for Small Generator Facilities Operating in Parallel

Attachment 5

APPENDIX 8
PJM SMALL GENERATOR TECHNICAL REQUIREMENTS & STANDARDS

See www.pjm.com

http://www.pjm.com/committees/tac/downloads/20041209-item-4-attachment-h-h-1-manual-14b.pdf

Appendix 9

Certification Requirements for Small Generator Facility Interconnection Equipment

1. Small Generating Facility equipment proposed for use separately or packaged with other equipment in an interconnection system shall be considered certified for interconnected operation if it has been tested in accordance IEEE 1547.1 in compliance with the appropriate codes and standards referenced below in attachment "A" by any Nationally Recognized Testing Laboratory (NRTL) recognized by the United States Occupational Safety and Health Administration to test and certify interconnection equipment pursuant to the relevant codes and standards listed in attachment "A", (2) it has been labeled and is publicly listed by such NRTL at the time of the interconnection application, and (3) such NRTL makes readily available for verification all test standards and procedures it utilized in performing such equipment certification, and, with consumer approval, the test data itself. The NRTL may make such information available on its web site and by encouraging such information to be included in the manufacturer's literature accompanying the equipment.
2. The Interconnection Customer must verify that the intended use of the Interconnection Equipment falls within the use or uses for which the Interconnection Equipment was labeled, and listed by the NRTL.
3. Certified Interconnection Equipment shall not require further type-test review, testing, or additional equipment to meet the requirements of this Standard Small Generator Interconnection Procedure; however, nothing herein shall preclude the need for an on-site Witness Test nor follow-up production testing by the Interconnection Customer.
4. If the Certified Interconnection Equipment package includes only interface components (switchgear, inverters, or other interface devices), then an Interconnection Customer must show that the generator or other electric source being utilized with the equipment package is compatible with the equipment package and is consistent with the testing and listing specified for this type of interconnection equipment.
5. Provided the generator or electric source, when combined with the equipment package, is within the range of capabilities for which it was tested by the NRTL, and does not violate the interface components' labeling and listing performed by the NRTL, no further design review, testing or additional equipment on the customer side of the point of common coupling shall be required to meet the requirements of this interconnection procedure.
6. Interconnection Equipment does not include equipment provided by the utility.

IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems (including use of IEEE 1547.1 testing protocols to establish conformity)

UL 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems

IEEE Std 929-2000 IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems

NFPA 70 National Electrical Code

IEEE Std C37.90.1-1989 (R1944) IEEE Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems

IEEE Std C37.90.2 (1995) IEEE Standard Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers

IEEE Std C37.108-1989 (R2002) IEEE Guide for the Protection of Network Transformers

IEEE Std C57.12.44-2000, IEEE Standard Requirements for Secondary Network Protectors

IEEE Std C62.41.2-2002, IEEE Recommended Practice on Characterization of Surges in Low Voltage (1000V and Less) AC Power Circuits

IEEE Std C62.45-1992 (R2002) IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000V) and Less) Power Circuits

ANSI C84.1-1995 Electric Power Systems and Equipment -Voltage Ratings (60 Hertz)

IEEE Std 100-2000, IEEE Standard Dictionary of Electrical and Electronic

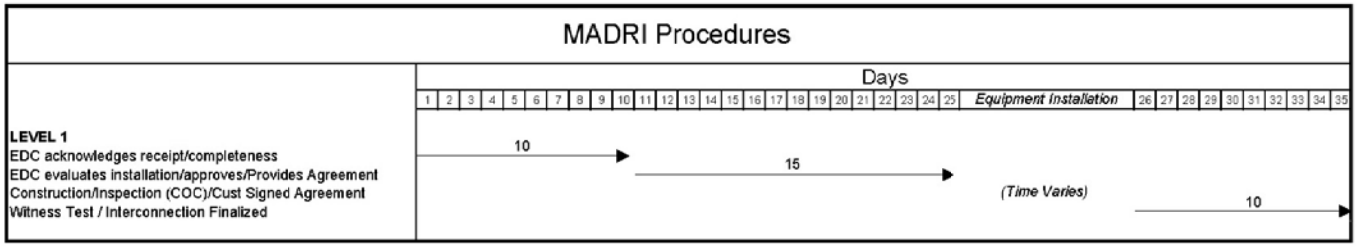
NEMA MG 1-1998, Motors and Small Resources, Revision 3

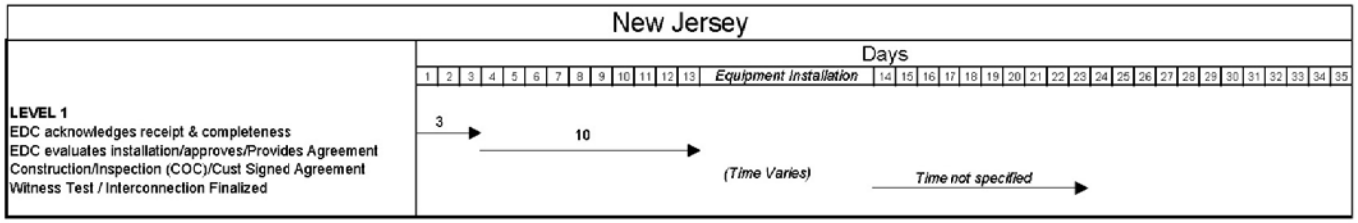
IEEE Std 519-1992, IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems

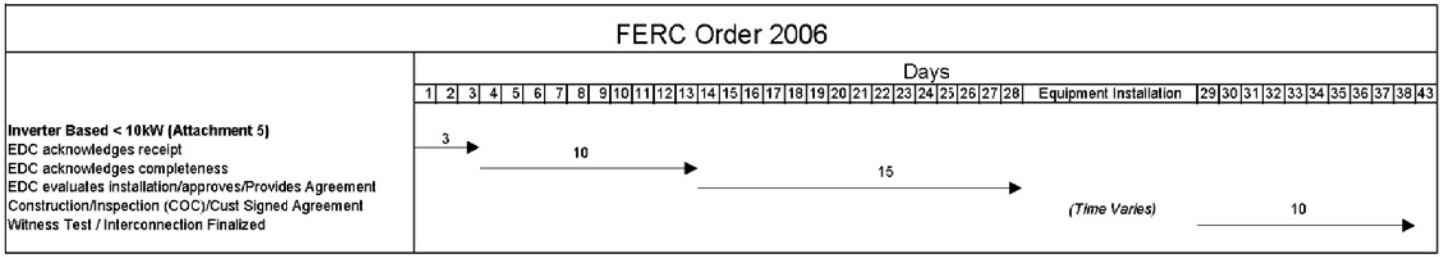
NEMA MG 1-2003 (Rev 2004), Motors and Generators, Revision 1

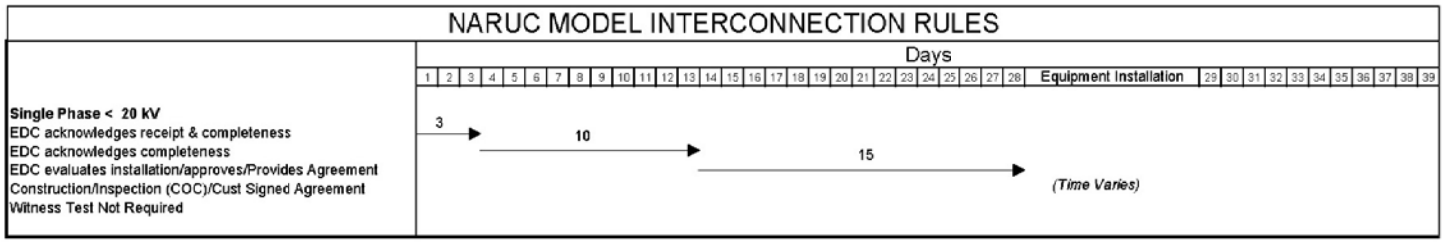
Appendix 10
Timeline Comparisons

Timeline Comparisons -- Level 1



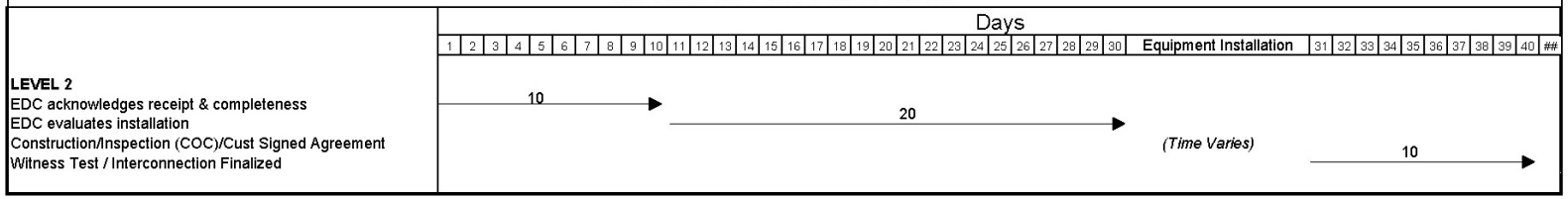




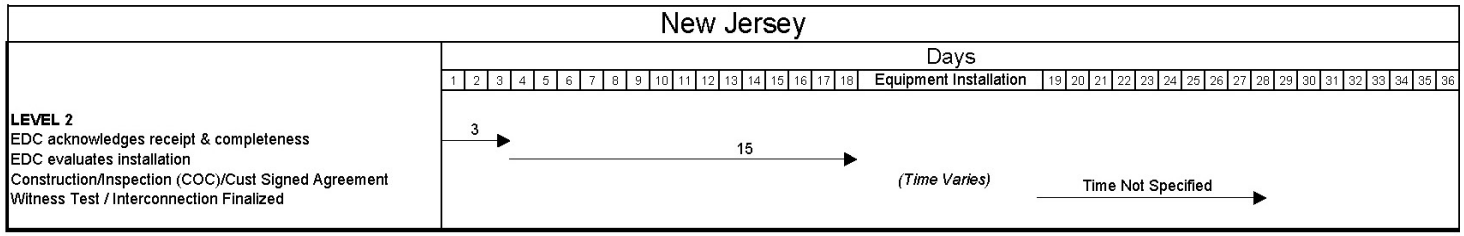


Timeline Comparisons -- Level 2

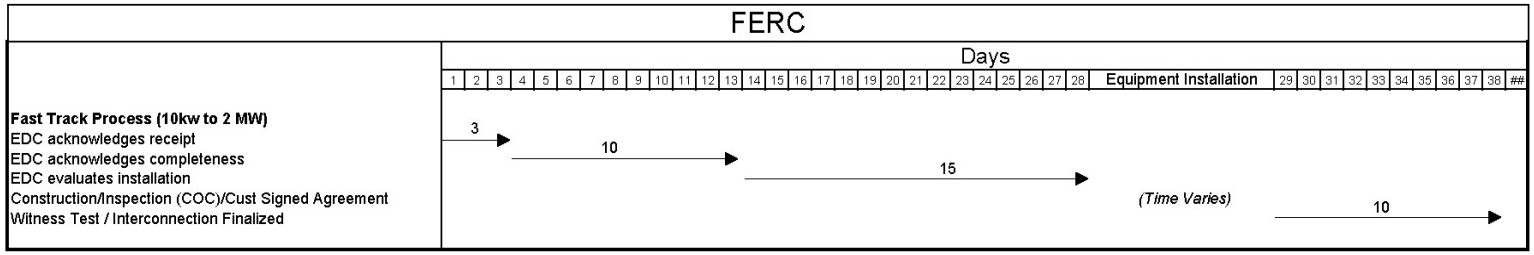
MADRI Level 2 Procedures



New Jersey



FERC



Note: NARUC does not specify expedited procedures for projects greater than 20 kV

Summary Prepared by Brad Johnson 9.12.05