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FILED
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 PUBLIC UTILITIES
 COMMISSION

December 6, 2003

Karen Higashi, Chief Clerk of the Commission
 Hawaii Public Utilities Commission
 South King Street, #103
 Honolulu, HI 96813

[Docket 03-0371] Instituting a Proceeding to Investigate Distributed Generation in Hawaii.

Dear Ms. Higashi:

By this letter, the North Carolina Solar Center requests designation as a participant in the above referenced docket. Please accept this request after the 20-day deadline, as we only learned of the new interconnection docket from the US DOE website on December 5.

The North Carolina Solar Center (NCSC) at NC State University was founded in 1988 to conduct research and technology transfer efforts relating renewable energy and distributed energy technologies. The Center is home to the Interstate Renewable Energy Council's National Interconnection Project and is a nationally recognized center of expertise on barriers to interconnection and siting of distributed renewable energy resources. NCSC has managed the Interconnection Project since its inception in 1995. The Project's website is available at <http://www.irecusa.org/connect>.

NCSC intends to monitor the filings and issues raised in this proceeding for its monthly interconnection e-newsletter (available for free through the Project website) and will participate if opportunities arise in the future with appropriate with technical assistance for participants on request. Notices and filings should be directed to:

Stephen Kalland
 Associate Director
 North Carolina Solar Center
 Campus Box 7401
 NC State University
 Raleigh, NC 27695

Rusty Haynes
 Interconnection Project Manager
 North Carolina Solar Center
 Campus Box 7401
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For reference, please consider the attached model interconnection document drafted by the Interstate Renewable Energy Council (IREC) for distributed generation up to 2 MW. The document draws heavily from IREC's work with the FERC Small Generator Interconnection Proceeding and the proceedings currently underway in Massachusetts, New Jersey and Kansas where IREC is providing technical assistance. If you have technical questions regarding the model document, please contact IREC's interconnection technical consultant, Chris Cook at 703-536-9393 or e3energy@aol.com.

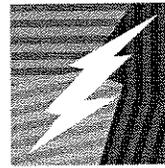
Thank you for your attention. Please do not hesitate to contact me at 919-466-8718 or at steve_kalland@ncsu.edu if there are any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Kalland', with a stylized flourish at the end.

Stephen S. Kalland

cc: Chris Cook, E3 Energy, IREC Technical Consultant
Rick Reed, President, Hawaii Solar Energy Industries Association



The
Interconnection
Project

PUBLIC UTILITIES
COMMISSION

DEC 12 1 07 PM '03

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**Model Distributed Generation Interconnection Procedures and
Net Metering provisions**

(version 9/30/03)

Explanatory note: These procedures are intended to be used for interconnections to distribution systems (typically radial circuits at voltages less than 69kV) although the framework for larger systems (up to 20MW) and interconnections to transmission systems are briefly addressed. A 2 MW limitation was selected as both the practical limit for expedited interconnections (above 2MW is typically precluded from expedited treatment because the size of the DG unit is often greater than the 10% limit for circuit peak load) and in recognition of the same limit in the Federal Energy Regulatory Commission's (FERC's) Small Generator Interconnection consensus filings. Units greater than 2MW, should, in many cases, be analyzed for power flows onto the transmission system – an analysis not included in these procedures.

PLEASE SEND ANY COMMENTS/SUGGESTIONS REGARDING THIS DOCUMENT TO: Steve Kalland, North Carolina Solar Center steve_kalland@ncsu.edu

Chapter 1-1.1 Introduction

The PUC finds it is in the public interest to adopt the detailed rules in this sub-section in order to simplify the process of interconnecting distributed generation facilities [that will be used for net metered customers]. These rules are intended to both identify a class of distributed generators that, because of their selected Point of Common Coupling, can be interconnected with ease and expedition as well as the standards to be used for ordinary interconnections by all utilities subject to PUC regulation.

Chapter 1-1.2 Definitions

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

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

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

“Area network” means a type of electric delivery system served by multiple transformers interconnected in an electrical network circuit generally used in large metropolitan areas that are densely populated in order to provide high reliability of service and having the same definition as the term “secondary grid network” as defined in IEEE standards

"PUC" means the state regulatory authority over electricity utilities or any successor agency.

“Class I Energy” is electrical energy generation as defined by the legislature. It may include all types of generation or be limited to certain types of renewable and/or combined heat and power systems. [[Note: This term is only used in the Net Metering sections below. It is not used and does not have any technical application to the interconnection rules even though policy makers in a jurisdiction may limit the rules to Class I generators]]

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

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

“Electric delivery system” means the infrastructure constructed and maintained by an EDC, as defined herein, to deliver electric service to end-users.

"Electric distribution company" or “EDC” means an electric distribution company

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

"Electric power supplier" means a person or entity that is duly licensed by the PUC to offer and to assume the contractual and legal responsibility to provide electric generation service to retail customers. This term includes load serving entities, marketers and brokers that offer or provide electric generation service to retail customers. This term does not include EDCs, as defined herein.

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

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

“Good Utility Practice” means a practice, method, policy, or action engaged in and/or accepted by a significant portion of the electric industry in a region, which a reasonable utility official would expect, in light of the facts reasonably discernable at the time, to accomplish the desired result reliably, safely and expeditiously but which is not inconsistent with these rules. This term has the same definition as the term is used in the interconnection rules promulgated by the FERC.

"IEEE" means the "Institute of Electrical and Electronic Engineers."

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

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

"Net metering" means that the customer-generator is billed according to the difference between the amount of electricity supplied by the electric power supplier or basic generation service provider in a given billing period and the electricity delivered from the customers' side of the meter using Class 1 energy systems, with customer generation in excess of electricity supplied credited over an annualized period.

“Minor System Modifications” include activities such as changing the fuse in a fuse holder cut-out, changing the settings on a circuit recloser and other activities that usually entail less than 4 hours of work and \$1000 in materials.

“Point of common coupling” means the point in the interconnection of a customer-generator facility with an electric delivery system at which the harmonic limits are applied and shall have the same meaning as in IEEE Standard 1547.

“Spot network” means a type of electric delivery 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 and has the same meaning as the term is used in IEEE standards.

"Supplier/provider" means an electric power supplier of competitive electricity supply in a retail competition market.

Chapter 1-1.3 Net Metering General provisions *(see also IREC model net metering rules)*

Note: this net metering model assumes retail competition exists in the jurisdiction

(a) All Electric Distribution Companies and electric power suppliers shall offer net metering at non-discriminatory rates to their customers that generate electricity, on the customer's side of the meter, using Class I Energy

(b) A customer-generator shall not be authorized to net meter if the capacity of the customer-generator's generating facility exceeds two megawatts.:

(c) The PUC shall develop a standard tariff providing for net metering. Each supplier and EDC shall make the tariff available to eligible customer-generators on a first-come, first-served basis.

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

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

(e) Each supplier shall submit an annual net metering report to the PUC. The report shall include

1. The total number of systems and the total estimated rated generating capacity of its net metering customer-generators;
2. The total estimated net kilowatt-hours received from customer-generators.

(f) A customer-generator owns any renewable attributes of the electricity it generates, and may sell any Renewable Energy Certificates created as a result of that generation, individually or through an aggregator, or through a certificate trading program authorized by the PUC. A customer-generator who wishes to estimate the generation resulting from a facility for purposes of this subsection shall do so using PUC-approved estimation procedures for facilities smaller than 10 kilowatts.

(g) The metering used to effectuate net metering shall be capable of measuring the flow of electricity in both directions, typically through the use of a single bi-directional meter. A customer shall be entitled to use their existing electric revenue meter if it is capable of measuring the bi-directional flow of electricity and is within plus or minus 5 percent tolerance when measuring electricity flowing from the customer to the supplier and/or EDC.

(h) If the existing customer's electricity revenue meter is not capable of measuring the bi-directional flow of electricity within the tolerances specified in subsection (g), an electric distribution company shall install a new meter for the customer-generator, at the company's expense.

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

1. The electric distribution company may install an additional meter at its own expense if the customer-generator consents; or
2. The customer-generator may request that the company install an additional meter at the customer-generator's expense. The cost for such a meter shall be limited to the actual cost of the meter and its installation.

(j) A supplier or EDC shall not charge a net metered customer any fee or charges or require additional equipment, insurance or any other requirement unless the same would be required of the customer if the customer were not a net metered customer, except that a supplier or EDC may use a special load profile for the customer that incorporates the customer's real time generation provided the special load profile is approved by the PUC.

(k) Future revisions to the procedural or technical requirements of this subchapter may be made through PUC Order.

Chapter 1-1.4 Interconnection Standards for Customer-Generator Facilities

(a) There are three interconnection review paths for interconnection of customer sited generation in [[State]].

1. Simplified – This is for qualified inverter-based facilities with a power rating of 10 kW or less on radial or spot network systems under certain conditions.
2. Expedited – This is for certified generating facilities that pass certain pre-specified screens and have a power rating of 2 MegaWatts (MW) or less.
3. Standard – This is for all generating facilities not qualifying for either the Simplified or Expedited interconnection review processes that have a power rating of 20 MW or less.

(b) In order to qualify for Simplified or Expedited interconnection procedures, generators no larger than 2MW must be certified pursuant to Section (c) to comply with the following codes and standards as applicable:

1. IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems or IEEE 929 for inverters less than 10kW in size
2. UL 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems
3. When any listed version of these codes and standards is superseded by a revision approved by the standards-making organization, then the revision will be applied under Section (c).

(c) **Certification of Equipment Packages:** An equipment package shall be considered certified for interconnected operation if it has been submitted by a manufacturer, tested and listed by a nationally recognized testing and certification laboratory (NRTL) for continuous interactive operation with a utility grid in compliance with the applicable codes and standards listed in

Subchapter (b) above.. An “equipment package” shall include all interface components including switchgear, inverters, or other interface devices and may include an integrated generator or electric source. If the equipment package has been tested and listed as an integrated package, which includes a generator or other electric source, it shall not require further design review, testing or additional equipment to meet the certification requirements of this interconnection procedure. If the equipment package includes only the interface components (switchgear, inverters, or other interface devices), then an interconnection Applicant must show that the generator or other electric source being utilized with the equipment package is compatible with the equipment package and consistent with the testing and listing specified for the package. Provided the generator or electric source combined with the equipment package is consistent with the testing and listing performed by the nationally recognized testing and certification laboratory, no further design review, testing or additional equipment shall be required to meet the certification requirements of this interconnection procedure. A certified equipment package does not include equipment provided by the utility.

(d) Screening Criteria for Determining Grid Impacts: A proposed interconnection that meets the following applicable screening criteria shall be processed by the EDC under Expedited procedures for interconnection and if qualified for net metering.

1. For interconnection of a proposed generator to a radial distribution circuit, the aggregated generation, including the proposed generator, on the circuit will not exceed 10% (15% for solar based generation) of the total circuit annual peak load as most recently measured at the substation.
2. The proposed generator, 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 high voltage (primary) level nearest the proposed point of common coupling.
3. The proposed generator, 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 customer equipment on the system, to exceed 90 percent of the short circuit interrupting capability; nor is the interconnection proposed for a circuit that already exceeds 90 percent of the short circuit interrupting capability.
4. The proposed generator, in aggregate with other generation interconnected to the distribution low voltage side of the substation transformer feeding the distribution circuit where the generator proposes to interconnect, will not exceed 10 MW in an area where there are known or posted transient stability limitations to generating units located in the general electrical vicinity (e.g., 3 or 4 transmission voltage level busses from the point of common coupling).
5. The proposed generator is interconnected to the EPS as shown in the table below:

Primary Distribution Line Configuration	Interconnection to Primary Distribution Line
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Three-phase, three wire	If a 3-phase or single phase generator, interconnection must be phase-to-phase
Three-phase, four wire	If a 3 phase (effectively grounded) or single-phase generator, interconnection must be line-to-neutral

6. If the proposed generator is to be interconnected on single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed generator, will not exceed 20 kiloVolt-Amps (kVA).
7. If the proposed generator is single-phase and is to be interconnected on a transformer 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 nameplate rating of the service transformer.
8. The proposed generator's Point of Common Coupling will not be on a transmission line.

(e) Special Screening Criteria for interconnection to spot and area distribution networks. The Screening Criteria under this subsection shall be in addition to the applicable Screens in subsection (d).

1. For interconnection of a proposed generator to a spot network circuit where the generator or aggregate of total generation exceeds 5% of the spot network's maximum load, the generator must utilize a protective scheme that will ensure that its current flow will not affect the network protective devices including reverse power relays or a comparable function.
2. For interconnection of a proposed generator that utilizes inverter based protective functions to an area network, the generator, in aggregate with other exporting generators interconnected on the load side of network protective devices, will not exceed the lesser of 10% of the minimum annual load on the network or 500 kW. For a solar photovoltaic customer-generator facility, the 10% minimum shall be determined as a function of the minimum load occurring during an off-peak daylight period
3. For interconnection of generators to area networks that do not utilize inverter based protective functions or inverter based generators that do not meet the requirements of (e)2 above, the generator must utilize reverse power relays or other protection devices that ensure no export of power from the customer's site including any inadvertent export (under fault conditions) that could adversely affect protective devices on the network circuit.

(f) Each EDC shall have a Simplified interconnection procedure for Inverter Based Generators not exceeding 10kW in capacity, which shall require the following steps.

1. Customer submits an Application filled out properly and completely indicating which certified generator or equipment package the customer intends to use.

2. EDC acknowledges to the customer receipt of the application within three business days of receipt.
3. EDC evaluates the Application for completeness and notifies the customer within 10 days of receipt that the application is or is not complete and whether the generating facility equipment passes screens 1, , 6, 7 and 8 in Subchapter (d). If incomplete, application is rejected and returned to customer with list of items needed to make it complete.
4. Within 3 days of the customer notification under Subchapter 3, the EDC will execute and send a simplified interconnection agreement to customer (unless an agreement is not required by the EDC).
5. Upon receipt of signed application/agreement and completion of installation, EDC may inspect generating facility for compliance with standards and may arrange for a witness test.
6. Provided the inspection/test is satisfactory, EDC notifies Customer in writing that interconnection is allowed, and approves. Customers who do not receive any notice from the EDC within 15 days are deemed approved for interconnection. Final interconnection of the generator is subject to approval by the appropriate electrical code officials.
7. The Simplified interconnection is provided at a total cost to the customer not to exceed [[primary recommendation \$0 – alternative = \$25¹]]. Additional protection equipment not included with the certified generator or interconnection equipment package may be added at the EDC's discretion as long as the performance of the system is not negatively impacted in any way and the customer is not charged for any equipment in addition to that which is included in the certified equipment package.

(g) Each EDC shall have an Expedited interconnection procedure for customer sited generators not exceeding 2MW in capacity that will use existing customer facilities, which shall require the following steps:

1. To assist customers in the interconnection process the EDC will designate an employee or office from which, basic information on the application can be obtained through an informal process. On request, the EDC will provide Applicant with all relevant forms, documents, and technical requirements for filing a Complete Application for interconnection of generators not exceeding 2 MW to the EDC's electric power system. Upon the customer's request, the EDC will meet with the customer prior to submission of an application for expedited interconnection..
2. Customer shall submit an application for Expedited interconnection to the EDC and may, at the same time, submit an Interconnection Agreement executed by the customer.

¹ Note: for average sized residential systems, total net production may be on the order of \$10 per month. A fee of \$100 would consume nearly a year's output and is a relative fee that no larger generator would agree to.

3. A customer will be notified by the EDC within 3 business days of its receipt of an interconnection application.
4. The EDC will notify the customer within 8 business days of its receipt of the application whether it is complete or incomplete. If the application is incomplete, the EDC will at the same time provide the customer a written list detailing all information that must be provided to complete the application. Applicant will have 10 business days to submit the listed information following receipt of the notice. If Applicant does not submit the listed information to EDC within the 10 business days, the application shall be deemed withdrawn. An application will be complete upon Applicant's submission of the information identified in The EDC's written list.
5. Within 10 business days after The EDC notifies Applicant it received a Complete Application the EDC shall perform an Initial Review of the proposed interconnection, which shall consist of an application of the screening criteria set forth in subsections (d) and (e). The EDC shall notify Applicant of the results, providing copies of the analysis and data underlying the EDC's determinations under the screens. During the Initial Review, the EDC may conduct, at its own expense, any additional studies or tests it deems necessary to evaluate the proposed interconnection.
6. If the Initial Review determines that the proposed interconnection passes the screens set forth in subsections (d) and (e) as applicable, the interconnection application will be approved and the EDC will provide Applicant an executable Interconnection Agreement within 5 business days after the determination.
7. If the Initial Review determines that the proposed interconnection fails one or more screens in subchapters (d) and (e), but the EDC determines through the Initial Review that the small generator may nevertheless be interconnected consistent with safety, reliability, and power quality, with or without minor system modifications, the EDC will provide Applicant an executable Interconnection Agreement within 5 business days after the determination. The generator is responsible for the cost of any minor system modifications required.
8. If the Initial Review determines that the proposed interconnection fails one or more screens in subchapters (d) and (e), and EDC does not or cannot determine from the Initial Review that the generator may nevertheless be interconnected consistent with safety, reliability, and power quality standards, then the EDC will offer to perform an Additional Review if the EDC concludes that Additional Review might determine that the generator could qualify for interconnection pursuant to the Expedited procedures. The EDC will provide a non-binding, but good faith estimate of the costs of such Additional Review when it notifies the customer its proposed interconnection has failed one or more screens in subchapters (d) and (e).
9. Each EDC will include in its net metering and interconnection compliance tariff the procedure it will follow for any Additional Review including the allocation of cost responsibility to the customer.

10. Final interconnection of the customer's generator is subject to commissioning tests as set forth in the IEEE standard 1547 (subsection (b)) and approval by the appropriate local electrical code officials.
11. An application and processing fee may be imposed on customers proposing interconnection of generators under Expedited interconnection procedures provided the total of all fees to complete the interconnection does not exceed \$50 plus \$1.00 per kilowatt of the capacity of the proposed generator. Additional fees may only be charged to customers if their generator interconnection requires minor system modifications pursuant to subchapter (g)(7) or Additional Review pursuant to subchapter (g)(8). Costs for minor system modifications or Additional Review will be based on quotations for services from the EDC and subject to review by the PUC or its designee for such review. Hourly engineering fees for Additional Review shall not exceed \$100 [recommendation] per hour.

(h) An electric distribution company may not require an eligible customer-generator whose system(s) meets the Simplified or Expedited interconnection standards in (b) through (g) above, as applicable, to install additional controls, perform or pay for additional tests or purchase additional liability insurance, except as agreed to by the customer in (g) above.

(i) Each customer generator approved for interconnection shall affix to their electric revenue meter a standard warning sign as approved by the PUC that notifies utility personnel of the existence of customer sited parallel generation.

(j) Each EDC shall have a Standard interconnection procedure available for generators not exceeding 20MW in capacity interconnecting to distribution level voltages that do not qualify for Simplified or Expedited interconnection procedures, which shall consist of the following:

1. The Customer submits an Application for Standard interconnection review; or a customer's interconnection application is transferred from the Simplified or Expedited interconnection procedures for failure to meet all of the requirements of those procedures
2. The EDC acknowledges to the Interconnecting Customer receipt of the application or the transfer from the Simplified or Expedited interconnection procedures within 3 business days.
3. The EDC evaluates the application for completeness and notifies the Customer within 10 days of receipt that the application is or is not complete and, if not, advises what is missing.
4. The EDC will conduct an initial review that includes a scoping meeting/discussion with the Customer (if necessary) to review the application. At the scoping meeting the EDC will provide pertinent

information such as: the available fault current at the proposed location; the existing peak loading on the lines in the general vicinity of the proposed generator; and, the configuration of the distribution lines at the proposed point of interconnection.

5. At the Customer's request, the EDC will undertake a Feasibility Study that provides a preliminary review of the potential impacts on the distribution system that will result from the proposed interconnection. The Feasibility Study may be combined with any Feasibility Study conducted to determine transmission impacts. The Feasibility Study will preliminarily review short circuit currents including contribution from the proposed generator as well as coordination of and potential overloading of distribution circuit protection devices. Provided there are no violations found in the Feasibility Study, the Impact Study (below) may be waived.
6. The EDC provides an Impact Study Agreement, including a cost estimate for the Impact Study. Where the proposed interconnection may affect electric transmission or distribution systems other than that of the EDC where the interconnection is proposed, the EDC shall coordinate, but not be responsible for the timing of any studies required to determine the impact of the interconnection request on other potentially affected electric systems. The Customer will be responsible to any other affected systems for all costs of any additional studies incurred by any other affected system to evaluate the impact of the proposed generator interconnection.
 - i. For generators greater than 2MW, the interconnection study may require analysis of power flows and other impacts on the transmission system if the utility has a reasonable belief that the interconnection of the generator will create power flows that reach the transmission system.
 - ii. Transmission system interconnection studies will be governed by separate procedures which may include submission of an application into a transmission interconnection queue (Example: See PJM OATT Subpart G www.pjm.com/documents/downloads/agreements/pjm-tariff.pdf.)
 - iii. Each EDC will identify the circumstances under which generators larger than 2 MW must submit their application into a transmission interconnection queue.
7. For generators that are certified pursuant to 1.4 (b) and (c), no review of the generator's protection equipment is required. While a utility may review a certified generator's protection scheme, it cannot charge for such review.
8. Each EDC will include in its compliance tariff a description of the various elements of an Impact Study it would typically undertake pursuant to this Section including:
 - i. Load Flow Study
 - ii. Short-Circuit Study
 - iii. Circuit Protection and Coordination Study
 - iv. Impact on System Operation

- v. Stability Study (and the conditions that would justify including this element in the Impact Study)
 - vi. Voltage Collapse Study (and the conditions that would justify including this element in the Impact Study).
9. Once the Interconnecting Customer executes the Impact Study Agreement and pays pursuant to the good faith estimate contained therewith, the EDC will conduct the interconnection Impact Study.
 10. If the EDC determines, in accordance with Good Utility Practice, that the EDC electric system modifications required to accommodate the proposed interconnection are not substantial, the Impact Study will identify the scope and cost of the modifications as defined in the study results.
 11. If the EDC determines, in accordance with Good Utility Practice, that the system modifications to the EDC electric system are substantial, the results of the Impact Study will produce an estimate for the modification costs (within $\pm 25\%$). The detailed costs of, and the EPS modifications necessary to interconnect the customer's proposed generator will be identified in a Facilities Study to be completed by the EDC.
 12. A Facilities Study Agreement, with a good faith estimate of the cost of completing the Facilities Study shall be submitted to the Customer for Customer's approval.
 13. Once the Interconnecting Customer executes the Facilities Study Agreement and pays pursuant to the terms thereof, the EDC will conduct the Facilities Study.
 14. Upon completion of the Impact and/or Facilities Study, the EDC shall send the Customer an executable Interconnection Agreement including a quote for any required EPS system modifications. .
 15. The Customer returns signed Interconnection Agreement.
 16. The Customer completes installation of its generator and the EDC completes any EPS system modifications.
 17. The EDC inspects completed generator installation for compliance with requirements and attends any required commissioning tests pursuant to IEEE Standard 1547.
 18. Provided any required commissioning tests are satisfactory, the EDC shall notify the Customer in writing that interconnection is approved.
- (l) Fees for Standard interconnection review shall include an application fee not to exceed \$100 plus \$2 per kW capacity, as well as charges for actual time spent on the interconnection study. Costs for engineering review shall not exceed \$100 per hour. Costs for EDC facilities necessary to accommodate the customer's generator interconnection will be the responsibility of the customer.

Chapter 1-1.5 Miscellaneous

- (a) An EDC that charges a fee for an interconnection study shall provide the customer-generator with a bill that includes a clear explanation of all charges. In addition, the electric distribution company shall provide to the customer-generator, prior to the start of the interconnection study, a

good faith estimate of the number of hours that will be needed to complete the interconnection study, and an estimate of the total interconnection study fee.

(b) If a customer-generator's facility complies with all applicable standards Chapter 1-1.4, the facility shall be presumed to comply with the technical requirements of this subchapter. In such a case, the electric distribution company shall not require a customer-generator to install additional controls (including but not limited to a utility accessible disconnect switch), perform or pay for additional tests, or purchase additional liability insurance in order to obtain approval to interconnect.

(c) Once an interconnection has been approved under this subchapter, the electric distribution company shall not require a customer-generator to test its facility except for the following:

1. An annual test in which the customer-generator's facility is disconnected from the electric distribution company's equipment to ensure that the generator stops delivering power to the grid; and
2. Any manufacturer-recommended testing.

(d) An EDC shall have the right to inspect a customer-generator's facility both before and after interconnection approval is granted, at reasonable hours and with reasonable prior notice to the customer-generator. If the electric distribution company discovers the customer-generator's facility is not in compliance with the requirements of Chapter 1-1.4 and the non-compliance adversely affects the safety or reliability of the electric system, the electric distribution company may require disconnection of the customer-generator's facility until it complies with this subchapter.

Chapter 1-1.6 Dispute Resolution

(a) The PUC may from time to time designate a technical master for the resolution of interconnection 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.

(b) 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.

COMMENTS (not yet addressed):

-
- 2 MW is artificial limit – allow the 10% to control

Standard Form Interconnection Application and Agreement for Power Systems 10 kW Or Smaller

Section 1. Customer Information

Name: _____
Mailing Address: _____
City: _____, State _____ Zip Code: _____
Street address (if different than above): _____
Daytime Phone: _____ Evening Phone: _____
Utility Customer Account Number (from utility bill): _____

Section 2. Generating Facility Information

System Type: Solar Wind Hydro Fuel Cell Generator Size (kW AC): _____
Class 1 generator? (Y/N) _____
Inverter Manufacturer: _____ Inverter Model: _____
Inverter Serial Number: _____ Inverter Power Rating: _____
Inverter Location: _____
Disconnect Type: Separate Manual Disconnect – Location: _____
 Meter Removal (If the Generator Owner elects not to install a manual disconnect device accessible to Utility, the Utility shall not be liable when a service meter is removed to disconnect the generator thereby interrupting all utility electric service to the Customer site)

Section 3. Planned Installation Information

Licensed Electrician: _____ Contractor #: _____
Mailing Address: _____
City: _____, State: _____, Zip Code: _____
Daytime Phone #: _____ Planned Installation date: _____

Section 4. Certifications

1. The generating facility' the requirements of applicable IEEE standards and is listed by Underwriters Laboratories (UL) or other nationally recognized testing laboratory
Signed (Equipment Vendor): _____ Date: _____
Name (Printed) _____ Company: _____
Listing _____ (UL or other NRTL)

Section 5. Utility and Building Division Inspection and Approval (to be completed by utility after installation)

1. Application Approved: _____ Date: _____
2. System Inspection by: _____ Inspection Date: _____

AGREEMENT FOR INTERCONNECTION AND PARALLEL OPERATION OF DISTRIBUTED GENERATION – (Generators Less than 20 MW capacity)

This Interconnection Agreement (“Agreement”) is made and entered into this _____ day of _____, 20___, by _____ (“Company”), and _____ (“Customer”) each hereinafter sometimes referred to individually as “Party” or both referred to collectively as the “Parties”.

Customer Information:

Name: _____
Address: _____
Telephone: _____

Company Information:

Name: _____
Address: _____
Telephone: _____

DG Application No. _____

In consideration of the mutual covenants set forth herein, the Parties agree as follows:

1. Scope and Purpose of Agreement:

This Agreement describes *only* the conditions under which the Company and the Customer agree that the distributed generating facility or facilities (“DG”) described in Exhibit A may be interconnected to and operated in parallel with the utility company’s system. Other services that the Customer may require from the Company will be covered under separate agreements. The technical terms used in this agreement are defined in Exhibit B.

The following exhibits are specifically incorporated into and made a part of this Agreement:

- Exhibit A: Summary and Description of Interconnection
- Exhibit B: Technical Definitions

2. Summary and Description of Customer’s Distributed Generation Equipment/Facility to be Included in Exhibit A:

A description of the Generating Facility, including a summary of its significant components and a diagram showing the general arrangement of Customer's DG and loads that are interconnected with Company's electric distribution system, is attached to and made a part of this Agreement as Exhibit A.

2.1 DG identification number: _____ (Assigned by the Company)

2.2 Company's customer electric service account number: _____ (Assigned by Company)

2.4 Customer’s name and address as it appears on the Customer’s electric service bill from the Company:

2.5 Capacity of the DG is: _____ kW.

2.6 The expected annual energy production of the DG is _____ kWh.

2.7 For the purpose of identifying eligibility of the Customer’s DG for consideration under the federal Public Utility Regulatory Practices Act of 1978 (“PURPA”), and

amendments, the Customer hereby declares that the DG does/ does not meet the requirements for "Cogeneration" as such term is used under applicable federal or state rules or laws.

2.8 The DG's expected date of Initial Operation is _____.

The expected date of Initial Operation shall be within two years of the date of this Agreement.

3. Operating Requirements

Customer shall operate and maintain the generator in accordance with the applicable manufacturer's recommended maintenance schedule, in compliance with all aspects of the Interconnection Tariff. The Customer will continue to comply with all applicable laws and requirements after interconnection has occurred. In the event the EDC has reason to believe that the Customer's installation may be the source of problems on the EDC's EPS, the EDC has the right to install monitoring equipment at a mutually agreed upon location to determine the source of the problems. If the generator is determined to be the source of the problems, the EDC may require disconnection as outlined in Service Agreement. The cost of this testing will be borne by the EDC unless the EDC demonstrates that the problem or problems are caused by the generator or if the test was performed at the request of the Customer.

4. No Adverse Effects; Non-interference

The EDC shall notify the Customer if there is evidence that the operation of the generator could cause disruption or deterioration of service to other Customers served from the same EDC EPS or if operation of the generator could cause damage to the EDC's EPS. The deterioration of service could be, but is not limited to, harmonic injection in excess of IEEE STD519, as well as voltage fluctuations caused by large step changes in loading at the Facility.

Each party will notify the other of any emergency or hazardous condition or occurrence with its equipment or facilities which could affect safe operation of the other party's equipment or facilities. Each party shall use reasonable efforts to provide the other party with advance notice of such conditions.

The EDC will operate the EPS in such a manner so as to not unreasonably interfere with the operation of the generator. The Customer will protect itself from normal disturbances propagating through the EDC's EPS, and such normal disturbances shall not constitute unreasonable interference unless the EDC has deviated from Good Utility Practice. Examples of such disturbances could be, but are not limited to, single-phasing events, voltage sags from remote faults on the EDC's EPS, and outages on the EDC's EPS. If the Customer demonstrates that the EDC's EPS is adversely affecting the operation of the generator and if the adverse effect is a result of an EDC deviation from Good Utility Practice, the EDC shall take appropriate action to eliminate the adverse effect.

5. Safe Operations and Maintenance

Each party shall operate, maintain, repair, and inspect, and shall be fully responsible for, the facility or facilities that it now or hereafter may own unless otherwise specified in the Service

Agreement. Each party shall be responsible for the maintenance, repair and condition of its respective lines and appurtenances on their respective side of the PCC. The EDC and the Customer shall each provide equipment on its respective side of the PCC that adequately protects the EDC's EPS, personnel, and other persons from damage and injury.

6. Access (see Section 17)

7. EDC and Customer Representatives

Each party shall provide and update as necessary the telephone number that can be used at all times to allow either party to report an emergency.

8. EDC Right to Access EDC-Owned Facilities and Equipment

If necessary for the purposes of the Service Agreement and in the manner it describes, the Customer shall allow the EDC access to the EDC's equipment and the EDC's facilities located on the Customer's premises. To the extent that the Customer does not own all or any part of the property on which the EDC is required to locate its equipment or facilities to serve the Customer, the Customer shall secure and provide in favor of the EDC the necessary rights to obtain access to such equipment or facilities, including easements if the circumstances so require.

9. Right to Review Information

Except for customer-generators interconnected under the Simplified procedures, the EDC shall have the right to review and obtain copies of the Customer's operations and maintenance records, logs, or other information such as, unit availability, maintenance outages, circuit breaker operation requiring manual reset, relay targets and unusual events pertaining to Customer's generator or its interconnection with the EDC's EPS. This information will be treated as customer-confidential and only used for the purposes of meeting the requirements of this section.

10. Prior Authorization

Except for generators using Simplified interconnection procedures, for the mutual protection of the Customer and the Company, the connections between the Company's service wires and the Customer's service entrance conductors shall not be energized without prior authorization of the Company, which authorization shall not be unreasonably withheld.

11. Warranty Is Neither Expressed Nor Implied

Neither by inspection, if any, or non-rejection, nor in any other way, does the Company give any warranty, express or implied, as to the adequacy, safety, or other characteristics of any structures, equipment, wires, appliances or devices owned, installed or maintained by the Customer or leased by the Customer from third parties, including without limitation the DG and any structures, equipment, wires, appliances or devices appurtenant thereto.

12. Liability Provisions

12.1 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 of any kind whatsoever.

12.2 Indemnification

a. Notwithstanding Paragraph 6.1 of this Agreement, the Company shall assume all liability for and shall indemnify the Customer for any claims, losses, costs, and expenses of any kind or character to the extent that they result from the Company's negligence in connection with the design, construction, or operation of its facilities as described on Exhibit A; provided, however, that the Company shall have no obligation to indemnify the Customer for claims brought by claimants who cannot recover directly from the Company. Such indemnity shall include, but is not limited to, financial responsibility for: (a) the Customer's monetary losses; (b) reasonable costs and expenses of defending an action or claim made by a third person; (c) damages related to the death or injury of a third person; (d) damages to the property of the Customer; (e) damages to the property of a third person; (f) damages for the disruption of the business of a third person. In no event shall the Company be liable for consequential, special, incidental or punitive damages, including, without limitation, loss of profits, loss of revenue, or loss of production.

The Company does not assume liability for any costs for damages arising from the disruption of the business of the Customer or for the Customer's costs and expenses of prosecuting or defending an action or claim against the Company. This paragraph does not create a liability on the part of the Company to the Customer or a third person, but requires indemnification where such liability exists. The limitations of liability provided in this paragraph do not apply in cases of gross negligence or intentional wrongdoing.

b. Notwithstanding Paragraph 6.1 of this Agreement, the Customer shall assume all liability for and shall indemnify the Company for any claims, losses, costs, and expenses of any kind or character to the extent that they result from the Customer's negligence in connection with the design, construction, or operation of its facilities as described on Exhibit A; provided, however, that the Customer shall have no obligation to indemnify the Company for claims brought by claimants who cannot recover directly from the Customer. Such indemnity shall include, but is not limited to, financial responsibility for: (a) the Company's monetary losses; (b) reasonable costs and expenses of defending an action or claim made by a third person; (c) damages related to the death or injury of a third person; (d) damages to the property of the Company; (e) damages to the property of a third person; (f) damages for the disruption of the business of a third person. In no event shall the Customer be liable for consequential, special, incidental or punitive damages, including, without limitation, loss of profits, loss of revenue, or loss of production. The Customer does not assume liability for any costs for damages arising from the disruption of the business of the Company or for the Company's costs and expenses of prosecuting or defending an action or claim against the Customer. This paragraph does not create a liability on the part of the Customer to the Company or a third person, but requires

indemnification where such liability exists. The limitations of liability provided in this paragraph do not apply in cases of gross negligence or intentional wrongdoing.

12.3 Force Majeure

If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, such Party will promptly notify the other Party in writing, and will keep the other Party informed on a continuing basis of the scope and duration of the Force Majeure Event. The affected Party will 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. The affected Party will be entitled to suspend or modify its performance of obligations under this Agreement, other than the obligation to make payments then due or becoming due under this Agreement, but only to the extent that the effect of the Force Majeure Event cannot be mitigated by the use of reasonable efforts. The affected Party will use reasonable efforts to resume its performance as soon as possible.

13. Insurance

The Customer is not required to provide general liability insurance coverage as part of this Agreement, or any other Company requirement. At no time shall the Company require that the Customer negotiate any policy or renewal of any policy covering any liability through a particular insurance company, agent, solicitor, or broker.

14. Effect

The inability of the Company to require the Customer to provide general liability insurance coverage for operation of the DG is not a waiver of any rights the Company may have to pursue remedies at law against the Customer to recover damages.

15. 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, such portion or provision shall be deemed separate and independent, and the remainder of this Agreement shall remain in full force and effect.

16. Notices

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

If to Customer: Customer Name

Attention: _____

Phone: () _____

FAX: () _____

If to Company: Company Name

Address: _____
City: _____
Phone: () _____
FAX: () _____

16.1 Notices

A Party may change its address for Notices at any time by providing the other Party Notice of the change in accordance with Section 10.

16.2 Communications

The Parties may also designate operating representatives to conduct the daily communications which may be necessary or convenient for the administration of this Agreement. Such designations, including names, addresses, and phone numbers may be communicated or revised by one Party's Notice to the other in accordance with Section 10.

17. Right of Access, Equipment Installation, Removal and Inspection

Upon reasonable notice, the Company may send a qualified person to the premises of the Customer at or immediately before the time the DG first produces energy to inspect the interconnection, and observe the DG's commissioning (including any required testing), startup, and operation for a period of up to no more than three days after initial start-up of the unit. In addition, the customer shall notify the company at least seven days prior to conducting any on-site Verification Testing of the DG.

Following the initial inspection process described above, at reasonable hours, and upon reasonable notice, or at any time without notice in the event of an emergency or hazardous condition, Company shall have access to 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 its customers.

18. Disconnection of Unit

Customer retains the option to temporarily disconnect from Company's Company system at any time. Such temporary disconnection shall not be a termination of the Agreement unless Customer exercises its termination rights under Section 19.

Subject to PUC Order or Rule, for routine maintenance and repairs on Company's Company system, Company shall provide Customer with seven days' notice of service interruption. The Company shall have the right to disconnect service to Customer without notice to eliminate conditions that constitute a potential hazard to Company personnel or the general public. The Company shall notify the Customer of the emergency as soon as circumstances permit.

The Company may disconnect the DG, after notice to the Customer has been provided and a reasonable time to correct, consistent with the conditions, has elapsed, if the DG adversely affects the quality of service of adjoining customers.

If, after the DG has been commissioned, the operations of the Company are adversely affecting the performance of the DG or the Customer's premises, the Company shall immediately take appropriate action to eliminate the adverse effect. If the Company determines that it needs to upgrade or reconfigure its system the Customer will not be responsible for the cost of new or additional equipment on the Company's side of the Point Of Common Coupling between the Customer and the Company.

19. Effective Term and Termination Rights

This Agreement becomes effective when executed by both parties and shall continue in effect until terminated. The agreement may be terminated for the following reasons: (a) Customer may terminate this Agreement at any time, by giving the Company sixty days' written notice; (b) Company may terminate upon failure by the Customer to generate energy from the Facility in parallel with the Company's system by the later of two years from the date of this agreement or twelve months after completion of the interconnection; (c) either party may terminate by giving the other party at least sixty days prior written notice that the other Party is in default of any of the material terms and conditions of the Agreement, so long as the notice specifies the basis for termination and there is reasonable opportunity to cure the default; or (d) Company may terminate by giving Customer at least sixty days notice in the event that there is a material change in an applicable rule or statute concerning interconnection and parallel operation of the DG, unless the Customer's installation is exempted from the change or the Customer complies with the change in a timely manner. Nothing in this provision shall limit the ability of the Company to disconnect the Customer without providing notice as specified herein if necessary to address a hazardous condition.

Upon termination of this Agreement the DG will be disconnected from the Company's electric 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.

20. Governing Law/Regulatory Authority

This Agreement was executed in the State of [[State]] and must in all respects be governed by, interpreted, construed, and enforced in accordance with the laws thereof. This Agreement is subject to, and the parties' obligations hereunder include, maintaining and operating in full compliance with all valid, applicable federal, State, and local laws or ordinances, and all applicable rules, regulations, orders of, and tariffs approved by, duly constituted regulatory authorities having jurisdiction.

21. Assignments

21.1 Assignment to Corporate Party

At any time during the term, the Customer may assign this Agreement to a corporation or other entity with limited liability, provided that the Customer obtains the consent of the Company. Such consent will not be withheld unless the Company can demonstrate that the corporate entity is not reasonably capable of performing the obligations of the assigning Customer under this Agreement.

21.2 Assignment to Individuals

At any time during the term, a Customer may assign this Agreement to another person,

other than a corporation or other entity with limited liability, provided that the assignee is the owner, lessee, or is otherwise responsible for the DG.

22. Confidentiality

23. Dispute Resolution

Each Party agrees to attempt to resolve all disputes arising hereunder promptly, equitably and in a good faith manner, consistent with applicable PUC Rules.

24. Amendment and Notification

This Agreement can only be amended or modified by a writing signed by both Parties.

25. Entire Agreement

This Agreement constitutes the entire Agreement between the Parties and supersedes all prior agreements or understandings, whether verbal or written. It is expressly acknowledged that the Parties may have other agreements covering other services not expressly provided for herein, which agreements are unaffected by this Agreement.

26. Non-Waiver

None of the provisions of this Agreement shall be considered waived by a Party unless such waiver is given in writing. 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 to waive the obligations, rights, or duties imposed on the Parties.

27. No Third Party Beneficiaries

This agreement is not intended to and does not create rights, remedies, 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 Parties, their successors in the interest and, where permitted, their assigns.

28. Signatures

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

[COMPANY NAME] [CUSTOMER NAME]

BY: _____ BY: _____

TITLE: _____ TITLE: _____

DATE: _____ DATE: _____

Exhibit A

[ATTACH CUSTOMER'S COMPLETED INTERCONNECTION APPLICATION HERE]

Exhibit B

Definitions for Terminology Used in the Agreement

- PUC – The utility regulator in [[State]]
- Company - An electric Company operating a distribution system.

- **Customer** – Any entity interconnected to the Utility Company system for the purpose of receiving [or exporting] electric power from [or to] the Utility Company system.
- **Distributed Generation (“DG”)** – An electrical generating installation consisting of one or more on-site generating units. The total capacity of the aggregated generating units to be interconnected at any Point Of Common Coupling under this Agreement shall not exceed 2 Megawatts.
- **Force Majeure Event** - For purposes of this Agreement, a "Force Majeure Event" means any event: (a) that is beyond the reasonable control of the affected Party; and (b) that the affected Party is unable to prevent or provide against by exercising reasonable diligence, including the following events or circumstances, but only to the extent they satisfy the preceding requirements: acts of war, public disorder, insurrection, or rebellion; floods, hurricanes, earthquakes, lightning, storms, and other natural calamities; explosions or fires; strikes, work stoppages, or labor disputes; embargoes; and sabotage.
- **Indemnification** – Protection against or being kept free from loss or damage.
- **Interconnection** – The physical connection of distributed generation to the Company system in accordance with the requirements of this Agreement so that parallel operation can occur.
- **Interconnection Agreement (“Agreement”)** – This standard form of Agreement, The Agreement sets forth the contractual conditions under which the Company and the Customer agree that DG may be interconnected with the Company’s system.
- **On-site Generating Units (or Distributed Generation)** [get definition]

- **Standardized Application** – The standard application for interconnection and parallel operation with the Company system, approved by the PUC.
- **Company System** – A Company’s distribution system to which the distributed generation equipment is interconnected.

Exhibit C

Allocation of Cost Responsibility for the Design, Installation, Operation, Maintenance and Ownership of the Interconnection Facilities, if any.

Note: this Interconnection Agreement (IA) is substantially similar to the NARUC model

Model Interconnection Application

(FOR USE WITH GENERATORS UP TO AND INCLUDING 20 MW)

Preamble

An applicant (Interconnection Applicant) hereby makes application to _____ (Utility) to install and operate a generating facility up to and including 20 MW interconnected with the _____ utility system. This application will be considered as an application for interconnection of generators under Expedited interconnection review provided the generator is not greater than 2 MW but shall serve as an Application for Standard interconnection review if greater than 2 MW or if Expedited review does not qualify the generator for interconnection.

Written applications should be submitted by mail, e-mail or telefax to the [Utility], as follows:

[Utility]: _____

[Utility's] Address: _____

Telefax Number: _____

E-Mail Address: _____

[Utility] Contact Name: _____

[Utility] Contact Title: _____

An application is a Complete Application when it provides all applicable information required below. (Additional information to evaluate a request for interconnection may be required and will be so requested from the Interconnection Applicant by Utility after the application is deemed complete).

Section 1. Applicant Information

Legal Name of Interconnecting Applicant (or, if an Individual, Individual's Name)

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Facility Location (if different from above):

Telephone (Daytime): Area Code _____ Number _____ (Evening) Area Code _____
Number _____

Facsimile Number: _____

E-Mail Address: _____

(Utility)

(Existing Account Number, if generator to be interconnected on the customer side of a utility revenue meter)

Type of Interconnect Service Applied for (choose one): _____ Network Resource,
_____ Energy Only, _____ Load Response (no export) _____ Net metering

Section 2. Generator Qualifications

*All data collected in Sections 2, 3, and 4 are applicable only to the generator facility,
NOT the necessary interconnection facilities*

Fuel Type or Renewable Energy

Source: _____

If proposed generator or equipment package certified list UL or equivalent testing number

Equipment Type	Testing Procedure or Listing
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____

Generator Nameplate Rating: _____ kW (Typical)

Generator Nameplate KVAR : _____ (Reactive Load)

Maximum Physical Export: _____ kW (or estimate if not known).

Type of Generator: _____ Synchronous _____ Induction _____ DC Generator or Solar with Inverter

Section 3. Generator Technical Information – may be omitted in initial application if data not available)

Generator (or solar collector) Manufacturer, Model Name & Number:

Version Number _____

Nameplate Output Power Rating in kW: (Summer) _____ (Winter) _____

Nameplate Output Power Rating in kVA: (Summer) _____ (Winter) _____

Individual Generator Power Factor

Rated Power Factor Leading _____

Rated Power Factor Lagging _____

Total Number of Generators in Wind Farm to be interconnected pursuant to this

application: _____ Elevation _____ Single phase _____ Three phase

Inverter Manufacturer, Model Name & Number (if used):

Adjustable Setpoints (if any)

Generator Characteristic Data (for rotating machines): (to be completed only where Utility requests dynamic study)

Direct Axis Transient Reactance, X'_d : _____ P.U.

Direct Axis Unsaturated Transient Reactance, X'_{di} : _____ P.U.

Direct Axis Subtransient Reactance, X''_d : _____ P.U.

Direct Axis Unsaturated Subtransient Reactance, X''_{di} : _____ P.U.

RPM Frequency _____

Total Rotating Inertia, H: _____ Per Unit on KVA Base

Section 4. Interconnecting Equipment Technical Data – this section may be omitted in initial application if data is not available.

Will a transformer be used between the generator and the point of interconnection?

____ Yes ____ No

Transformer Data (if applicable, for Interconnection Applicant Owned Transformer):

Size: _____ KVA .

Transformer Primary : _____ Volts ____ Delta ____ Wye ____ Wye Grounded

Transformer Secondary: _____ Volts ____ Delta ____ Wye ____ Wye Grounded

Transformer Impedance: _____ % on _____ KVA Base

Transformer Fuse Data (if applicable, for Interconnection Applicant Owned Fuse):

(Attach copy of fuse manufacturer's Minimum Melt & Total Clearing Time-Current Curves)

Manufacturer: _____ Type: _____ Size: _____ Speed: _____

Interconnecting Circuit Breaker (if applicable):

Manufacturer: _____ Type: _____ Load Rating: _____ Interrupting Rating: _____

Trip Speed: _____

(Amps)

(Amps)

(Cycles)

Circuit Breaker Protective Relays (if applicable):

(Enclose copy of any proposed Time-Overcurrent Coordination Curves)

Manufacturer: _____ Type: _____ Style/Catalog No.: _____ Proposed Setting: _____

Manufacturer: _____ Type: _____ Style/Catalog No.: _____ Proposed Setting: _____

Manufacturer: _____ Type: _____ Style/Catalog No.: _____ Proposed Setting: _____

Manufacturer: _____ Type: _____ Style/Catalog No.: _____ Proposed Setting: _____

Manufacturer: _____ Type: _____ Style/Catalog No.: _____ Proposed Setting: _____

Current Transformer Data (if applicable):

(Enclose copy of Manufacturer's Excitation & Ratio Correction Curves)

Manufacturer: _____ Type: _____ Accuracy Class: _____ Proposed Ratio Connection: _____/5

Manufacturer: _____ Type: _____ Accuracy Class: _____ Proposed Ratio Connection: _____/5

Potential Transformer Data (if applicable):

Manufacturer: _____ Type: _____ Accuracy Class: _____ Proposed Ratio Connection: _____/5

Manufacturer: _____ Type: _____ Accuracy Class: _____ Proposed Ratio Connection: _____/5

Section 5. General Technical Information

Requested Point of Interconnection (if known): _____

Interconnection Applicant's requested in-service date _____

Enclose copy of site preliminary electrical One-Line Diagram showing the configuration of all generating facility equipment, current and potential circuits and protection and control schemes. Is preliminary One-Line Diagram Enclosed?: _____ Yes

Enclose copy of any site documentation, including USGS topographic map or other diagram or documentation that indicates precise physical location of generating facility.

Section 6. Applicant Signature

I hereby certify that, to the best of my knowledge, all the information provided in the Interconnection Application is true and correct. I also agree to install a Warning Label provided by (utility) on or near my service meter location. Generating systems must be compliant with IEEE, NEC, ANSI, and UL standards, where applicable. By signing below, the Applicant also certifies that the installed generating equipment meets the appropriate preceding requirement(s) and can supply documentation that confirms compliance.

Signature of Applicant: _____ Date: _____

Section 7. Information Required Prior to Physical Interconnection (Not required as part of the application, unless available at time of application.)

Installing Electrician: _____ Firm: _____

License No.: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone: Area Code: _____ Number: _____

Installation Date: _____

Interconnection Date: _____

Signed (Inspector – if required): _____

Date: _____

(In lieu of signature of Inspector, a copy of the final inspection certificate may be attached)