

Interconnection Procedures Guideline

[NON-FOSSIL FUELED DISTRIBUTED GENERATING FACILITIES]
(CAPACITIES: < OR = 50KW)



DOCUMENT: 11.8.002



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1. OVERVIEW

1.1 OBJECTIVE:

The purpose of Policy Statement 11.8.001 and this Procedures Guideline is to set forth common interconnection requirements and a common interconnection process based on a common screening process for Customers to expeditiously interconnect Non-fossil Fueled Generating Facilities in a safe and reliable manner with the Utility's Grid.

1.2 APPLICABILITY:

The interconnection standards and procedures described in this document apply to Generating Facilities with a Rated Capacity up to and including 50 kW. The Parties shall use the procedures and forms described in this document and 11.8.001 for interconnections of Renewable Energy Sourced Electrical Generating Facilities with rated capacities up to and including 50kW unless the Parties mutually agree to use a different procedure or form consistent with provisions of the Public Utilities Act.

1.3 DEFINITIONS:

Capitalized terms used in this Procedures Guideline shall have the meanings specified in Section 11.

1.4 APPLICABLE REQUIREMENTS:

The Generating Facility shall be designed to be in conformance with all of the applicable requirements in this document, including Exhibit 2. In the event of a conflict between APUA Policy Statement 11.8.001 and this Guideline, the provisions of the Policy Statement shall take precedence.

2. APPLICATION INSTRUCTIONS

2.1. REFERENCES:

References in this Procedures Guideline to Interconnection Agreement are to the Generating Facility interconnection agreement in the Exhibit to this Guideline.

2.2. PRE-APPLICATION:

It is recommended that an Interconnection Customer have a pre-application discussion with the Utility. The Utility shall designate an employee or office from which information on the application process and on the Utility System can be obtained through informal requests from the Interconnection Customer presenting a proposed Generating Facility for a specific site. The Utility shall comply with reasonable requests for information. If the information requested is proprietary or confidential, the Utility shall provide the information after the Interconnection Customer making the request enters into a confidentiality agreement. The Utility shall not provide confidential or proprietary information that it is prohibited from providing even if it is party to a confidentiality agreement.

2.3 INTERCONNECTION APPLICATION:

A. The Interconnection Customer shall submit an Interconnection Application to the Utility (see Exhibits 1A), together with the fees or deposit required by this Guideline or Policy Statement 11.8.001.11. The Interconnection Application shall be dated and time-stamped upon receipt by the Utility. The original date and time-stamp applied to the Interconnection Application at the time of its original submission shall be accepted as the qualifying date and time-stamp for the purposes of any timetable in this document.

B. The Interconnection Customer shall be notified of receipt by the Utility within three (3) Business Days of such receipt. Notification may be to an e-mail address or fax number provided by the Interconnection Customer. The Utility shall notify the Interconnection Customer within ten (10) Business Days of the receipt of the Interconnection Application as to whether the Interconnection Application is complete or incomplete.

C. If the Interconnection Application is incomplete, the Utility shall provide, along with the notice that the Interconnection Application is incomplete, a written list detailing all information that must be provided to complete the Interconnection Application. The Interconnection Customer shall have ten (10) Business Days after receipt of the notice to submit the listed information or to request an extension of time to provide such information. If the Interconnection Customer does not provide either the listed information or a request for an extension of time within the deadline, the Interconnection Application will be deemed to be withdrawn. An Interconnection Application will be deemed complete upon submission of the listed information to the Utility.

D. Queue Position: The Utility shall place Interconnection Applications in a first come, first served order per feeder and per substation based upon the date- and time-stamp of the Interconnection Application. The order of each Interconnection Application will be used to determine the cost responsibility for the Upgrades necessary to accommodate the interconnection. At the Utility's option, Interconnection Applications may be studied serially or in clusters for the purpose of the System Impact Study.

3. GENERAL REVIEW OF THE PROCESS:

3.1 REVIEW PROCESS:

This review process allows for rapid approval for the interconnection of those Generating Facilities that do not require an interconnection study. The review process includes a screening by the Utility to determine if a Supplemental Review is required. The general guidelines for the interconnection review process are shown in Table 1.

Table 1 - General Guidelines for the Interconnection Process.

INTERCONNECTION REVIEW PROCESS*	APPLICATION TYPE	LIKELY SYSTEM SIZE
Simplified Interconnection Process	(See Exhibit 1A)	0<=5kW
Fast Track Process with or without Supplemental Review	(See Exhibit 1A)	>5kW<=25kW
Full Interconnection Study Process	(See Exhibit 1A)	>25kW<=50kW

**These guidelines are provided to indicate the review process that most applications will follow. The technical requirements in the screening process will determine which review process must be followed. System size alone will not guarantee a specific interconnection review process.*

3.2 DESCRIPTION OF GENERAL REVIEW PATH:

The Utility shall utilize the interconnection screening process shown in Figure 1 that results in four general review paths for proposed interconnection of these Non-Fossil Fueled Generating Facilities:

- A.** Simplified Interconnection - For Certified Inverter-based Generating Facilities with a power rating of 5 kilowatts (kW) or less.
- B.** Fast Track with or without Supplemental Review - For certified Generating Facilities that pass certain specified screens and likely would have a power rating of 25 kilowatts (kW) or less, or
- C.** Full Interconnection Study - For Generating Facilities that have a power rating of 50 kilowatts (kW) or less and do not qualify for the Simplified or Fast Track process.

3.3 DETERMINATIONS FOR FURTHER REVIEW:

Failure to pass any screen of the review process means only that further review and/or studies are required before the Generating Facility can be approved to interconnect to the Utility's Distribution System. It does not mean that the Generating Facility cannot be interconnected.

3.4 REVIEW PROCESS DETERMINATION:

These guidelines are provided to indicate the review process that most applications will follow. The technical requirements in the screening process will determine which review process must be followed. The size of the Generating Facility will not guarantee a specific interconnection review process.

3.5 SUPPLEMENTAL REVIEW:

Supplemental Review is not a Full Interconnection Study. Supplemental Review is a process wherein the Utility further reviews an Interconnection Application that fails one or more of the initial review screens.

4. UTILITY REVIEW FLOW CHART:

The flow chart provided in Figure 1 is an illustration of the review process to be used by the Utility to evaluate Interconnection Applications. Details about the screens are described in Section 5, Screening Criteria.

5. SCREEN CRITERIA:

The Utility shall use the following screen criteria, as applicable, to evaluate Interconnection Applications.

Screen 1: Is the Interconnection Facility equipment certified for the application?

- If Yes, continue to next screen.
- If No, the Generating Facility or Interconnection Facilities do not qualify for Simplified Interconnection. Perform Supplemental Review.

Screen 2: Is the aggregate Generating Facility capacity on the Feeder less than 15% of Feeder peak load?

- If Yes, continue to next screen.
- If No, the Generating Facility does not qualify for Simplified Interconnection.

Perform Supplemental Review to determine cumulative impact on the Feeder.

Screen 3: For single phase interconnections only -- Is the aggregate generation capacity on the Shared Secondary, including the proposed Generating Facility, less than 65 % of the nameplate rating of the service transformer?

- If Yes, continue to next screen.
- If No, the Generating Facility does not qualify for Simplified Interconnection. Perform Supplemental Review.

Screen 4: For single phase interconnections only -- Is the load imbalance between the two sides of the 240 volt service less than 20 % of the nameplate capacity rating of the service transformer?

- If Yes, continue to next screen.
- If No, the Generating Facility does not qualify for Simplified Interconnection. Perform Supplemental Review.

Screen 5: Does the Facility use a Certified Inverter with a capacity rating of 5 kW or less?

- If Yes, the Generating Facility qualifies for Simplified Interconnection. Skip remaining screens.
- If No, continue to next screen.

Screen 6: Is the inrush voltage dip less than 5% and have the flicker requirements of IEEE 519 been met?

- If Yes, continue to next screen.
- If No, perform Supplemental Review.

Screen 7: Is the Short Circuit Current Contribution Ratio within acceptable limits?

- If Yes, continue to next screen.
- If No, Perform Supplemental Review.

Screen 8: Is the Line Type Configuration compatible with the interconnection type?

- If Yes, the Generating Facility qualifies for Fast Track Interconnection.
- If No, Perform Supplemental Review.

6. CUSTOMER OPTIONS MEETING AND SUPPLEMENTAL REVIEW:

6.1 CUSTOMER OPTIONS MEETING:

Within ten (10) Business Days of the Utility's completion of its initial review, the Utility shall offer to convene a Customer Options Meeting with the Utility to review possible Interconnection Customer facility modifications or the screen analysis and related results to determine what further steps are needed to permit the Generating Facility to be connected safely and reliably. At the time of notification of the Utility's determination, or at the Customer Options Meeting, the Utility shall:

A. Offer to perform facility modifications or minor modifications to the Utility's electric System (e.g., changing meters, fuses, relay settings) and provide a non-binding good faith estimate of the limited cost to make such modifications to the Utility's electric System and offer to continue the screening process; or

B. Offer to perform a Supplemental Review if the Utility concludes that the Supplemental Review might determine that the Generating Facility could continue to qualify for interconnection pursuant to the Fast Track Process, and provide a non-binding good faith estimate of the costs and time of such review; or

C. Offer to continue evaluating the Interconnection Application under the Full Interconnection Study Process.

6.2 SUPPLEMENTAL REVIEW:

A. If the Interconnection Customer agrees to a Supplemental Review, as described in this Section, the Interconnection Customer shall agree in writing within fifteen (15) Business Days of the offer, and submit a deposit for the estimated costs provided by the Utility. The Interconnection Customer shall be responsible for the Utility's actual costs for conducting the Supplemental Review. The Interconnection Customer shall pay any review costs that exceed the deposit within twenty (20) Business Days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced costs, the Utility will return such excess within twenty (20) Business Days of the invoice without interest. Within ten (10) Business Days following receipt of the deposit for a Supplemental Review, the Utility will complete the Supplemental Review. If a consultant is utilized to review an Interconnection Application then the Utility may extend each of the time deadlines for review of the Fast Track Process by a period not to exceed twenty (20) Business Days provided that the Utility shall make a good faith effort to complete the review sooner.

B. If the Generating Facility can be interconnected safely and reliably, the Utility shall forward an executable interconnection agreement to the Interconnection Customer within five (5) Business Days.

1. If Interconnection Customer facility modifications are required to allow the Generating Facility to be interconnected consistent with safety, reliability, and power quality standards under this Guideline, the Utility shall forward an executable interconnection agreement to the Interconnection Customer within five (5) Business Days after confirmation that the Interconnection Customer has agreed to make the necessary changes at the Interconnection Customer's cost.

2. If minor modifications to the Utility's electric System are required to allow the Generating Facility to be interconnected consistent with safety, reliability, and power quality standards under the Fast Track Process, the Utility shall forward an executable interconnection agreement to the Interconnection Customer within ten (10) Business Days that requires the Interconnection Customer to pay the costs of such System modifications prior to interconnection.

C. If the Utility cannot determine within ten (10) Business Days that the Generating Facility can be interconnected safely and reliably, the Utility shall, if the Interconnection Customer agrees, continue to evaluate the Interconnection Application using the Full Interconnection Study Process.

7. SIMPLIFIED INTERCONNECTION-5KW INVERTER PROCESS:

7.1 AVAILABILITY:

The Simplified Interconnection process is available to an Interconnection Customer proposing to interconnect its Generating Facility using a Certified Inverter that is 5 kW or smaller.

7.2 INTERCONNECTION APPLICATION:

The Interconnection Customer completes the relevant sections of the Interconnection Application set forth in the Exhibits to this Guideline, and submits it to the Utility.

7.3 CONTACT INFORMATION:

The Interconnection Customer must provide its contact information. If another Person is responsible for interfacing with the Utility, that contact information must be provided on the Application.

7.4 NOTIFICATION OF RECEIPT:

The Utility acknowledges to the Interconnection Customer receipt of the Interconnection Application within three (3) Business Days of receipt.

7.5 NOTIFICATION OF APPLICATION STATUS:

The Utility evaluates the Interconnection Application for completeness and notifies the Customer within ten (10) Business Days of receipt that the Interconnection Application is or is not complete and, if not, advises the Interconnection Customer what material is missing.

7.6 INITIAL REVIEW:

Within fifteen (15) Business Days of receipt of a complete Interconnection Application, the Utility shall conduct an initial review, which shall include the following criteria:

A. Applicable Screens: Screens 1 through 5.

B. No construction of facilities by the Utility on its own system shall be required to accommodate the Generating Facility.

7.7 COMPLETED APPLICATION:

Unless the Utility determines and demonstrates that the Generating Facility cannot be interconnected safely and reliably, the Utility will provide the Interconnection Customer an APPROVED-STAMPED completed Interconnection Application, subject to the terms and conditions for interconnection provided in the interconnection agreement of Exhibit 3A.

7.8 TESTING AND CERTIFICATION OF COMPLETION:

A. Following receipt of the APPROVED-STAMPED completed Interconnection Application, the Interconnection Customer may proceed with the installation and off-line operational testing of the Facility.

B. Upon completion, the Interconnection Customer provides written notice of completion to the Utility. Prior to parallel operation, the Utility may inspect the Generating Facility for compliance with standards, which may include a witness test, and may schedule appropriate metering replacement, if necessary. The Utility is obligated to complete the inspection within ten (10) Business Days of the receipt of the notice of completion.

C. Within five (5) Business Days of the Utility's completion of inspection and testing or the Utility's waiver of the right to inspect and test, the Utility notifies the Interconnection Customer in writing, which may be delivered by fax or e-mail, that interconnection and hence operation of the Generating Facility is authorized.

8. FAST TRACK PROCESS:

8.1 AVAILABILITY:

The Fast Track Process is available to an Interconnection Customer if the Generating Facility is generally no larger than 25kW and if the Interconnection Customer's proposed Generating Facility meets the codes, standards, and certification requirements of this Guideline.

8.2 NOTIFICATION OF RECEIPT:

The Utility will acknowledge to the Interconnection Customer receipt of the Interconnection Application within three (3) Business Days of receipt.

8.3 NOTIFICATION OF APPLICATION STATUS:

The Utility evaluates the Interconnection Application for completeness and notifies the Customer within ten (10) Business Days of receipt that the Interconnection Application is or is not complete and, if not, advises the Interconnection Customer what material is missing.

8.4 INITIAL REVIEW:

Within fifteen (15) Business Days after the Utility notifies the Interconnection Customer that it has received a complete Interconnection Application, the Utility shall perform an initial review using the screens set forth below and shall notify the Interconnection Customer of the results. If a consultant is utilized to review an Interconnection Application then the Utility may extend each of the time deadlines for review of the Fast Track Process by a period not to exceed twenty (20) Business Days provided that the Utility shall make a good faith effort to complete the review sooner.

8.5 APPLICABLE SCREENS:

All Screens 1-8

A. If the proposed interconnection passes the screens, the Interconnection Application shall be approved and the Utility will provide the Interconnection Customer an executable interconnection agreement in the form of Exhibit 3A within five (5) Business Days after the determination.

B. If the proposed interconnection fails the screens, but the Utility determines that the Generating Facility may nevertheless be interconnected the Utility will provide the Interconnection Customer an executable interconnection agreement in the form of Exhibit 3A within five (5) Business Days after the determination.

C. If the proposed interconnection fails the screens, but the Utility does not or cannot determine from the initial review that the Generating Facility may nevertheless be interconnected consistent with safety, reliability, and power quality standards unless the Interconnection Customer is willing to consider minor modifications or further study, the Utility shall provide the Interconnection Customer with the opportunity to attend a Customer Options Meeting.

D. The Utility shall notify the Interconnection Customer and provide copies of the data and analyses underlying its conclusion within five (5) Business Days, if the Utility makes any of the following determinations:

1. The Interconnection Application cannot be approved without minor modifications at minimal cost,

2. The Interconnection Application cannot be approved without a Supplemental Review or other additional studies or actions by the Utility, or

3. The Interconnection Application may result in a significant cost to address safety, reliability, or power quality problems.

8.6 INSPECTION AND NOTIFICATION:

A. Following receipt of the completed executable Interconnection Agreement, the Interconnection Customer may proceed with the installation and off-line operational testing of the facility.

B. Upon completion, the Interconnection Customer provides written notice of completion to the Utility. Prior to parallel operation, the Utility shall inspect the Generating Facility for compliance with standards and the Utility may attend any required commissioning tests pursuant to IEEE 1547.1. The Utility is obligated to complete the inspection within ten (10) Business Days of the receipt of the notice of completion.

C. Within five (5) Business Days of the Utility's completion of inspection and testing or the Utility's waiver of the right to inspect and test, the Utility notifies the Interconnection Customer in writing, which may be delivered by fax or e-mail, that interconnection of the Generating Facility is authorized.

9. FULL INTERCONNECTION STUDY:

9.1 AVAILABILITY:

The Full Interconnection Study process shall be used for an Interconnection Customer proposing to interconnect its Generating Facility with the Utility's System if the Generating Facility is larger than 25 kW and (1) does not include a Certified Equipment Package, or (2) includes a Certified Equipment Package but did not pass the Fast Track Process or the Simplified Interconnection 5 kW Inverter Process. A Full Interconnection Study shall provide an in-depth engineering review of the interconnection addressing all aspects of generator performance and grid interaction and take into account the unique circumstances that require the Full Interconnection Study.

9.2 NOTIFICATION OF RECEIPT:

The Utility shall notify the Interconnection Customer of the receipt of the Interconnection Application within three (3) Business Days.

9.3 NOTIFICATION OF APPLICATION STATUS:

The Utility shall evaluate the Interconnection Application and notify the Interconnection Customer within ten (10) Business Days of receipt that the Interconnection Application is complete or incomplete. If the Interconnection Application is incomplete, the Utility shall provide notice to the Interconnection Customer and a written list that describes all information that must be provided to complete the Interconnection Application. When the Interconnection Application is complete, the Utility shall assign a queue position based on the date of receipt of the completed Interconnection Application.

9.4 SCOPING MEETING:

The Utility will conduct an initial review that includes a scoping meeting with the Interconnection Customer, if applicable, within ten (15) Business Days of determination that an Interconnection Application is complete. At the scoping meeting the Utility shall 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 Generation Facility, and the configuration of the distribution lines at the proposed Point of Common Coupling. By mutual agreement of the Parties, the Feasibility Study, Impact Study or Facilities Study may be waived.

9.5 FEASIBILITY STUDY:

At the Interconnection Customer's request and within five (5) Business Days of the scoping meeting, the Utility will provide a good faith estimate of the cost and time to undertake a Feasibility Study that provides a preliminary review of the potential impacts on the Distribution System from the proposed interconnection and a proposed Feasibility Study agreement. The Feasibility Study will provide a preliminary review of short circuit currents, including contribution from the proposed Generation Facility, and coordination and potential overloading of distribution circuit protection devices. If the Interconnection Customer agrees to the Feasibility Study, the Interconnection Customer shall provide an executed agreement and a deposit for the estimated costs provided by the Utility.

9.6 IMPACT STUDY:

If the Feasibility Study determines that an Impact Study is not required, the Impact Study may be waived by mutual agreement. If an Impact Study is required, within ten (10) Business Days of the completion of the Feasibility Study, the Utility shall provide to the Interconnection Customer an Impact Study agreement, including a cost estimate for the Impact Study. Once the Interconnection Customer executes the Impact Study agreement and pays a deposit pursuant to the good faith estimate contained therewith, the Utility shall conduct the Impact Study.

9.7 INTERCONNECTION EQUIPMENT:

For Generating Facilities that use certified interconnection equipment, no review of the interconnection equipment is required.

9.8 UTILITY SYSTEM MODIFICATIONS:

A. If the Utility determines that the Utility's 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 Impact Study results and no Facilities Study shall be required.

B. If the Utility determines that the System modifications to the utility's electric System are substantial, the results of the Impact Study will provide a good faith estimate for the modification costs (within ± 25 percent). The detailed costs of, and the electric System modifications necessary to interconnect the proposed Generating Facility shall be identified in a Facilities Study to be completed by the Utility.

9.9 FACILITIES STUDY:

A Facilities Study agreement, with a good faith estimate of the cost of completing the Facilities Study, shall be submitted to the Interconnection Customer for approval. Once the Interconnection Customer executes the Facilities Study agreement and pays pursuant to the terms thereof, the Utility shall conduct the Facilities Study.

9.10 INTERCONNECTION AGREEMENT:

Within five (5) Business Days of completion of the Impact Study and/or Facilities Study, the Utility shall send the Interconnection Customer an executable interconnection agreement including a quote for any required electric System modifications. Within thirty (30) Business Days of the receipt of an interconnection agreement, the Interconnection Customer shall execute and return the interconnection agreement.

9.11 INTERCONNECTION MILESTONES:

The Facilities Study shall indicate the milestones for completion of the Interconnection Customer's installation of its Generation Facility and the Utility's completion of any electric System modifications, and the milestones from the Facilities Study (if any) shall be incorporated into the interconnection agreement.

9.12 GENERATING FACILITY INSTALLATION COMPLIANCE:

The Utility shall inspect the completed Generating Facility installation for compliance with requirements and attend any required commissioning tests pursuant to IEEE Standard 1547.1. Provided that any required commissioning tests are satisfactory, the Utility shall notify the Interconnection Customer in writing that operation of the Generating Facility is authorized.

10. OPERATING REQUIREMENTS:

10.1 POWER QUALITY:

Power quality, including but not limited to harmonic limits and flicker requirements, shall be consistent with recommendations in IEEE 1547 & IEEE 519.

10.2 DISCONNECTION:

If the Utility determines that any equipment connected to the Utility's System is problematic or unsafe, the Utility may disconnect the Generating Facility from the Utility's System and provide the Interconnection Customer with written justification for its determination.

11. DEFINITIONS:

Business Day means a day other than Saturday, Sunday or any day on which banks located in the Nation of Antigua and Barbuda are authorized or obligated to close.

Certified Equipment Package means interconnection equipment that has been tested and listed by a recognized testing and certification laboratory for continuous interactive operation with a utility grid. The extent of the equipment package is defined by the type test performed to certify the package under 1547.1.

Certified Inverter means an inverter that has been tested and listed by a recognized testing and certification laboratory for continuous interactive operation with a utility grid.

Distribution System means the Utility's facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries directly from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances. The voltage levels at which Distribution Systems operate may differ among areas.

Distribution Upgrades means the additions, modifications, and upgrades to the Utility's Distribution System at or beyond the Point of Common Coupling to facilitate interconnection of the Generating Facility and render the service necessary to effect the Interconnection Customer's operation of on-site generation. Distribution Upgrades do not include Interconnection Facilities.

Facility Study means the facilities study that specifies and estimates the cost of the equipment, engineering, procurement, and construction work (including overheads) needed to implement the conclusions of the System Impact Study.

Feasibility Study means the study that identifies any potential adverse System impacts that would result from the interconnection of the Generating Facility.

Generating Facility means the Interconnection Customer's device for the production of electricity identified in the Interconnection Application, including all generators, electrical wires, equipment, and other facilities owned or provided by the Interconnection Customer for the purpose of producing electric power.

Impact Study means a System impact study that identifies and details the electric System impacts that would result if the proposed Generating Facility were interconnected without project modifications or electric System modifications, focusing on the adverse System impacts identified in the Feasibility Study, or to study potential impacts, including but not limited to those identified in the scoping meeting. A System Impact Study shall evaluate the impact of the proposed interconnection on the reliability of the electric System.

Interconnection Application means the request by an Interconnection Customer to interconnect a new Generating Facility, or to increase the capacity or make a material modification to the operating characteristics of an existing Generating Facility that is interconnected with the Utility's System.

Interconnection Costs means the reasonable costs of connection, switching, metering, transmission, distribution, safety provisions, and administration incurred by the Utility which are directly related to the installation and maintenance of the physical facilities necessary to permit interconnected operations with a Generating facility to the extent such costs are in excess of the corresponding costs which the Utility would have incurred if it had not engaged in interconnected operations.

Interconnection Customer means any person that proposes to interconnect its Generating Facility with the Utility's System.

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

Party means the Utility and the Interconnection Customer separately or in combination. Person for purposes of this Procedures Guideline means an individual, partnership or company.

Point of Common Coupling means the point where the Interconnection Facilities connect with the Utility's System.

Power Conversion Unit (PCU) means an inverter or AC generator, not including the energy source.

Primary Distribution Feeder means a medium voltage supply emanating from a 69kV/11kV substation feeding the various distribution class transformers supplying utilization voltages to the consumers.

Rated Capacity means the total AC nameplate rating of the Power Conversion Unit(s) at the Point of Common Coupling.

Shared Secondary means any connection on the secondary side of a distribution transformer that serves more than one customer.

Short Circuit Current Contribution Ratio means the ratio of the Generating Facility's short circuit contribution to the short circuit contribution provided through the Utility's Distribution System for a three-phase fault at the high voltage side of the distribution transformer connecting the Generating Facility to the Utility's System.

Study Process means the procedure for evaluating an Interconnection Application that includes the Full Interconnection Study scoping meeting, Feasibility Study, System Impact Study, and Facilities Study.

System means the facilities owned, controlled, or operated by the Utility that are used to provide electric service under a Utility's tariff.

System Emergency means a condition on a Utility's System that is likely to result in imminent significant disruption of service to customers or is imminently likely to endanger life or property.

Upgrade means the required additions and modifications to the Utility's System at or beyond the Point of Common Coupling. Upgrades do not include Interconnection Facilities.

Utility means The Antigua Public Utilities Authority a Statutory Corporation governed under the provisions of the Antigua Public Utilities Act.

APPLICATION FORM:

EXHIBIT 1A

Interconnection Application

[Non-Fossil Fueled Generating Facilities

With a Rated Capacity up to and including 50kW AC]

This Application is considered complete when it provides all applicable and correct information required below. Additional information to evaluate the Application may be required.

Interconnection Customer

Name: _____

Address: _____

Telephone (Day): (Evening): _____ / _____

Fax/E-Mail Address: _____ / _____

Engineering Designer (If Applicable):

Name: _____

Address: _____

Telephone: _____

Fax/ E-Mail Address: _____ / _____

Contact (if different from Interconnection Customer)

Name: _____

Address: _____

Telephone (Day): (Evening): _____ / _____

Fax: E-Mail Address: _____ / _____

Generator < = 5 kW:

Facility Location: _____

APUA Electricity Account Number: _____

Inverter Manufacturer: _____ Model _____

Nameplate Rating: (kW)/ (kVA)/ (AC Volts) _____ / _____ / _____

Single Phase _____ Three Phase _____

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

Prime Mover: Photovoltaic, Fuel Cell, Turbine, Other (describe) _____

Energy Source: Solar, Wind, Hydro, Other (describe) _____

Prime Mover Manufacturer: _____

Model Number: _____

Nameplate Output Power Rating in kW: _____

Nameplate Output Power Rating in kVA: _____

Is the equipment UL1741 Listed? Yes _____ No _____

If Yes, attach manufacturer's cut-sheet showing UL1741 listing

Estimated Installation Date: _____ Estimated In-Service Date: _____

List components of the Generating Facility equipment package that are currently certified:

Equipment Type/Certifying Entity

1. _____ / _____
2. _____ / _____
3. _____ / _____
4. _____ / _____
5. _____ / _____
6. _____ / _____

Note: A completed Single Line Diagram must accompany this application

Generator > 5kW / < = 50 kW:

Facility Location: _____

APUA Account Number: _____

Energy Source: ___ Solar, ___ Wind, ___ Hydro, ___ Other (state type) _____

Prime Mover: ___ Fuel Cell, ___ Turbine, ___ Microturbine, ___ PV, ___ Other

Prime Mover Manufacturer: _____

Model Number: _____

Nameplate Output Power Rating in kW: _____

Nameplate Output Power Rating in kVA: _____

Type of Generator: ___ Synchronous ___ Induction ___ Inverter

Manufacturer: _____

Model Number: _____

Generator Nameplate Rating: _____ kW (Typical); _____ kVA:

Rated Power Factor: Leading: _____ Lagging: _____

Total Number of Generators to be interconnected for this Interconnection Application: # _____; ___ Single phase; ___ Three phase

Interconnection Customer or Customer-Site Load: _____ kW (if none, so state)

List components of the Generating Facility Equipment Package that are currently certified:

Equipment Type / Certifying Entity

1. _____ / _____
2. _____ / _____
3. _____ / _____
4. _____ / _____
5. _____ / _____

Note: A completed Single Line Diagram must accompany this application

Required for all Systems

Interconnection Facilities Information:

Will a transformer be used between the generator and the Point of Common Coupling? ___ Yes ___ No

Transformer Data (If Applicable, for Interconnection Customer-Owned Transformer):

Is the transformer: ___ single phase ___ three phase? Size: _____ kVA

Transformer Impedance: _____ percent on _____ kVA Base

If Three Phase:

Transformer Primary: ___ Volts ___ Delta ___ Wye ___ Wye Grounded

Transformer Secondary: ___ Volts ___ Delta ___ Wye ___ Wye Grounded

Transformer Tertiary: ___ Volts ___ Delta ___ Wye ___ Wye Grounded

General Information

Enclose copy of site electrical one-line diagram showing the configuration of all Generating Facility equipment, current and potential circuits, protection and grounding schemes.

This one-line diagram must be approved by a Professional Engineer if the Generating Facility is larger than 5 kW.

Is One-Line Diagram Enclosed?

____ Yes ____ No

Enclose copy of any site documentation that indicates the precise physical location of the proposed Generating Facility (e.g. topographic map or other diagram or documentation).

Interconnection Customer Signature

I hereby certify that, to the best of my knowledge, the information provided in this Application is true. I agree to abide by the Terms and Conditions for Interconnection contained in the Antigua Public Utilities Authority Interconnection Procedures Guideline Publication, Exhibit 3A and return the notice of completion when the Generating Facility has been installed.

Signed: _____

Title: _____

Date: _____

Authorized Utility Representative's Signature

APUA agrees to abide by the Terms and Conditions contained in the Antigua Public Utilities Authority Interconnection Procedures Guideline Publication Exhibit 3A.

Signed: _____

Title: _____

Date: _____

APPLICABLE STANDARDS:**EXHIBIT 2**

Certification Codes and Standards Referenced

IEEE1547-2003 Standard for Interconnecting Distributed Resources with Electric Power Systems (including use of IEEE 1547.1 testing protocols to establish conformity)

IEEE 1547.1-2005 ---

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

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

IEEE STD 100-2000, IEEE Standard Dictionary of Electrical and Electronic Terms

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

INTERCONNECTION AGREEMENT:

EXHIBIT 3A – Interconnection Agreement

[Terms and Conditions for Non Fossil Fueled Generating Facilities with a Rated Capacity 50kW or Less]

I.0 SCOPE AND PURPOSE

1.1 This Agreement is intended to provide for the Interconnection Customer to Interconnect and operate the Generating Facility in parallel with the Utility's System. Attachment #1 provides a one-line diagram of the Generating Facility and the Point of Common Coupling. Attachment #2 provides a description of the Generating Facility and its physical location.

1.2 This Agreement contains the terms and conditions under which the Interconnection Customer may interconnect the Generating Facility to the Utility. This Agreement does not authorize the Interconnection Customer to export power or constitute an agreement to purchase or wheel the Interconnection Customer's power.

1.3 This Agreement allows for the occasional and inadvertent export of energy to the Utility, though it does not constitute an agreement by the Utility to purchase or pay for any energy, inadvertently or intentionally exported.

1.4 This Agreement does not constitute a request for the provision of any transmission delivery service nor any local distribution delivery service.

1.5 The technical requirements for interconnection are provided in APUA's 11.8.001 Policy Declaration which incorporates by reference the APUA Interconnection Procedures Guideline publication. Declaration 11.8.001 and the Guidelines are incorporated and made part of this Agreement by this reference.

2.0 DEFINITIONS

"Agreement" means this Generating Facility Interconnection Agreement and its attachments.

"Business Day" means a day other than Saturday, Sunday or any day on which banks located in the Nation of Antigua and Barbuda are authorized or obligated to close.

"Generating Facility" means the Interconnection Customer's device for the production of electricity identified in the Interconnection Application, including all generators, electrical wires, equipment, and other facilities owned or provided by the Interconnection Customer for the purpose of producing electric power.

"Generator" means any device producing electrical energy, including rotating generators driven by wind, steam turbines, solar panels, fuel cells, or any other electric producing device, including energy storage technologies.

"Interconnection Application" means the request by an Interconnection Customer to interconnect a new Generating Facility, or to increase the capacity or make a material modification to the operating characteristics of an existing Generating Facility that is interconnected with the Utility's System.

"Interconnection Customer" is the person or entity so defined in the first paragraph of this Agreement.

“Interconnection Facilities” means the Utility's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Common Coupling, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Generating Facility to the Utility's System. Interconnection Facilities are sole use facilities and shall not include Distribution Upgrades.

“Interconnection Procedures Guideline” means APUA’s Interconnection Procedures Guideline Publication and its exhibits.

“Point of Common Coupling” means the point where the Interconnection Facilities connect with the Utility's System.

“Rated Capacity” when used with respect to solar PV systems means 85% of the combined DC name plate rating of the solar panels. When used with respect to any other Generating Facility, Rated Capacity means the name plate rating of the Generating Facility.

“System” means the facilities owned, controlled, or operated by the Utility that are used to provide electric service under the Utility’s tariff.

“System Emergency” means a condition on the Utility's System that is likely to result in imminent significant disruption of service to customers or is imminently likely to endanger life or property.

“Upgrade” means the required additions and modifications to the Utility's System at or beyond the Point of Common Coupling. Upgrades do not include Interconnection Facilities.

“Utility” is the entity so defined in the first paragraph of this Agreement.

3.0 CONSTRUCTION OF THE FACILITY

The Interconnection Customer (the "Customer") may proceed to construct the Generating Facility when the Utility approves the Interconnection Application (the "Application") and returns it to the Customer.

4.0 INTERCONNECTION AND OPERATION

The Customer may operate Generating Facility and interconnect with the Utility’s electric system once all of the following have occurred:

4.1 Upon completing construction, the Customer shall cause the Generating Facility to be inspected by the electrical wiring inspector and

4.2 The Utility shall provide a written statement that the Generating Facility has passed inspection and is authorized for parallel operation with the Utility’s grid or shall notify the Customer of what steps it must take to pass inspection as soon as practicable after the inspection takes place.

4.3 The Utility has the right to disconnect the Generating Facility in the event of any improper installation or failure by the Customer to have the installation inspected and authorized.

5.0 SAFE OPERATIONS AND MAINTENANCE

The Customer shall be fully responsible to operate, maintain, and repair the Generating Facility as required to ensure that it complies at all times with the interconnection standards to which it has been authorized.

6.0 ACCESS

The Utility shall have access to the disconnect switch and metering equipment of the Generating Facility at all times. The Utility shall provide reasonable notice to the Customer when possible prior to using its right of access.

7.0 DISCONNECTION

The Utility may temporarily disconnect the Generating Facility upon the following conditions:

- 7.1** For all scheduled outages.
- 7.2** For unscheduled outages or emergency conditions.
- 7.3** If the Generating Facility does not operate in the manner consistent with these Terms and Conditions.
- 7.4** The Utility shall endeavor to inform the Customer in advance of any scheduled disconnection, or as is reasonable after an unscheduled disconnection.

8.0 INDEMNIFICATION

The Interconnection Customer shall indemnify and hold harmless the Utility against all damages, expenses and other obligations to third parties attributable to the negligence, strict liability or intentional acts of the Interconnection Customer. The Utility shall indemnify and hold harmless the Interconnection Customer against all damages, expenses and other obligations to third parties attributable to the negligence, strict liability or intentional acts of the Utility. The terms "Utility" and "Interconnection Customer," for purposes of this indemnification provision, include their officers, directors, trustees, managers, members, employees, representatives, affiliates, successors and assigns.

9.0 INSURANCE

All Generating facilities with a rated capacity of 50kW or less are strongly urged to obtain liability insurance to cover risks, liabilities, and consequences which may arise as a result of interconnection with the Utility System.

10.0 LIMITATION OF LIABILITY

Except in the event of acts of willful misconduct, each Party's liability to the other Party for failure to perform its obligations under this Agreement shall be limited to the amount of direct damage actually incurred. Neither Party shall be liable to the other Party for any punitive, incidental, indirect, special, or consequential damages of any kind whatsoever, including for loss of business opportunity or profits, regardless of whether such damages were foreseen.

Notwithstanding any other provision in this Agreement, with respect to the Utility's provision of electric service to any customer including the Interconnection Customer, the Utility's liability to such customer shall be limited as set forth in the Utility's tariffs and terms and conditions for electric service, and shall not be affected by the terms of this Agreement.

11.0 TERMINATION

The agreement to interconnect may be terminated under the following conditions:

- 11.1** By the Customer: By providing written notice to the Utility.
- 11.2** By the Utility: If the Generating Facility fails to operate for any consecutive 12 month period or the Customer fails to remedy a violation of these Terms and Conditions.
- 11.3** Permanent Disconnection: In the event this Agreement is terminated, the Utility shall have the right to disconnect its facilities or direct the Customer to disconnect its Generating Facility.
- 11.4** 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.

12.0 ASSIGNMENT/TRANSFER OF OWNERSHIP OF THE FACILITY

This Agreement shall survive the transfer of ownership of the Generating Facility to a new owner when the new owner agrees in writing to comply with the terms of this Agreement and so notifies the Utility.

13.0 MISCELLANEOUS

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

13.2 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.

14.0 SIGNATURES

IN WITNESS WHEREOF, the Parties hereto have caused two originals of this Agreement to be executed by their duly authorized representatives. This Agreement is effective as of the last date set forth below.

Interconnection Customer

By: _____

Name: _____

Title: _____

Date: _____

Utility

By: _____

Name: _____

Title: _____

Date: _____

