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**New York State  
Standardized Interconnection Requirements and Application Process  
For New Distributed Generators and Energy Storage Systems 15 kW or Less  
Connected in Parallel with Utility Distribution Systems  
New York State  
Public Service Commission**

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## Section I. Application Process

### New York State Standardized Interconnection Requirements and Application Process for New Distributed Generators and Energy Storage Systems 15 kW or Less Connected in Parallel with Utility Distribution Systems ("SIR")

#### A. Introduction

This section provides a framework for processing applications to:

- interconnect new distributed generation ("DG") facilities with a generator nameplate rating of 15 kW or less [aggregated on the customer side of the point of common coupling ("PCC")], and
- interconnect new energy storage system (ESS) facilities with an AC inverter/converter nameplate rating of 15 kW or less aggregated on the customer side of the PCC that may be combined with existing or new DG (Hybrid Projects), however, maximum export capacity onto the utility distribution system is capped at an AC nameplate rating or AC inverter/converter nameplate rating of 15 kW. ESS shall only be allowed to charge from the DG and not from the electric utility systems; and,
- review any modifications affecting the interface at the PCC to existing DG facilities with a nameplate rating of 15 kW or less (aggregated on the customer side of the PCC) that have been interconnected to the utility distribution system and where an existing contract between the applicant and the utility is in place.

Distributed Generation or Energy Storage Systems neither designed to operate, nor operating, in parallel with the utility's electrical system is not subject to these requirements. This section will ensure that applicants are aware of the technical interconnection requirements and utility interconnection policies and practices. This section will also provide applicants with an understanding of the process and information required to allow utilities to review and accept the applicants' equipment for interconnection in a reasonable and expeditious manner.

The time required to complete the process will reflect the complexity of the proposed project. Projects using previously submitted designs certified per the requirements of Section II.H will move through the process more quickly, and several steps may be satisfied with an initial application depending on the detail and completeness of the application and supporting documentation submitted by the applicant. Applicants submitting systems utilizing certified equipment however, are not exempt from providing utilities with complete design packages necessary for the utilities to verify the electrical characteristics of the generator systems, the interconnecting facilities, and the impacts of the applicants' equipment on the utilities' systems.

The application process and the attendant services must be offered on a non-discriminatory basis. The utilities must clearly identify their costs related to the applicants' interconnections, specifically those costs the utilities would not have incurred but for the applicants' interconnections. The utilities will keep a log of all applications, milestones met, and justifications for application-specific requirements. The applicants are to be responsible for

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payment of the utilities' costs, as provided for herein.

All application timelines shall commence the next Business Day following receipt of information from the applicant. Staff of the Department of Public Service ("DPS Staff") will monitor the application process to ensure that applications are addressed in a timely manner. To perform this monitoring function, DPS Staff will meet periodically with utility and applicant representatives.

A glossary of terms used herein is provided in Section III.

## **B. Application Process Steps for Systems 15 kW or Less**

### **STEP 1: Initial Communication from the Potential Applicant**

Communication could range from a general inquiry to a completed application.

### **STEP 2: The Inquiry is Reviewed by the Utility to Determine the Nature of the Project**

Technical staff from the utility may discuss the scope of the interconnection with the potential applicant (either by phone or in person) and provide a copy of the SIR document and any utility specific technical specifications that may apply. A utility representative shall be designated to serve as the single point of contact for the applicant in coordinating the potential applicant's project with the utility.

### **STEP 3: Potential Applicant Files an Application**

The potential applicant submits a complete application package in the name of the customer to the utility. No application fee is required of the applicant for systems 15 kW or less. A complete application package will consist of (1) a letter of authorization by the customer (if the applicant is an agent for the customer), (2) the standard single page application form completed and signed by the applicant, (3) a signed copy of the standardized contract, (4) a three line diagram for the system identifying the manufacturer and model number of the equipment(s), (5) a copy of the manufacturer's data sheet for the equipment(s), (6) a copy of the manufacturers verification test procedure(s) and (7) a copy of the equipment(s) certification to the most current version of UL 1741. The equipment(s) will be considered acceptable by the utility if they meet the requirements of Section II.H. Electronic submission of all documents is acceptable, inclusive of electronic signature. Electronic signatures must meet the requirements for filing documents electronically with the Secretary of the Commission. The utility has ten (10) Business Days upon receipt of the original application submittal to determine if the application is complete, meets the SIR technical requirements in Section II, and/or approved for interconnection if all other requirements are met. The utility shall notify the applicant by email, fax, or other form of written communication. If the application is deemed not complete by the utility, the utility shall provide a detailed explanation of the deficiencies identified and a list of the additional information required from the applicant. Once it has received the required information, the utility shall notify the applicant of the acceptance or rejection of the application within ten (10) Business days. If the applicant fails to submit the additional information to the utility within thirty (30) Business Days following the date of the utility's written notification, the application shall be deemed withdrawn and no further action on the part of the utility is required.

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The utility's notification of acceptance to the applicant shall include an executed New York State Standardized Interconnection Contract and the applicant may proceed with the proposed installation. The utility shall also indicate in its response to the applicant whether or not it plans to witness the testing and verification process in person.

An accepted application will be placed in each utility's interconnection inventory upon the utility's receipt of the New York State Standardized Contract executed by the applicant. If the final acceptance as set out in Step 6 below is not completed within twelve (12) months of receipt of such executed copy of the New York State Standardized Contract as a result of applicant inactivity, the utility has the right to notify the applicant by U.S. first class mail with delivery receipt confirmation that the applicant's project will be removed from the utility's interconnection inventory if the applicant does not respond within thirty (30) Business Days of the issue of such notification and provide a project status update and/or justification as to why the project should remain in the utility's interconnection inventory for an additional period of time.

With respect to an applicant proposing to install a system rated 15 kW or less, that is to be net-metered, if the utility determines that it is necessary to install a dedicated transformer(s) or other equipment to protect the safety and adequacy of electric service provided to other customers, the applicant shall be informed of its responsibility for the actual costs for installing the dedicated transformer(s) and other safety equipment. Appendix A sets forth the responsibility each applicant shall have with respect to the actual cost of the dedicated transformer(s) and other safety equipment.

#### **STEP 4: System Installation**

The applicant will install the DG system according to the utility accepted design and the equipment manufacturer's requirements. If there are substantive design variations from the originally accepted system diagram, a revised system diagram (and other drawings for non-inverter based systems) shall be submitted by the applicant for the utility's review and acceptance. All inverter based systems will be allowed to interconnect to the utility system for a period not to exceed two hours, for the sole purpose of assuring proper operation of the installed equipment.

For net metered systems, any modifications related to existing metering configurations to allow for net metering shall be completed by the utility within ten (10) Business Days of either notification to the utility that the installation has been completed or request for a verification test, whichever comes first.

#### **STEP 5: The Applicant's Facility is Tested in Accordance with the Standardized Interconnection Requirements**

Verification testing will be performed by the applicant in accordance with the written verification test procedure provided by the equipment manufacturer. If the utility requested to witness the testing and verification process in person as required in Step 3, the verification testing will be performed within ten (10) Business Days of the system installation completion date, at a mutually agreeable time. If the utility has opted not to witness the test, the applicant will send the utility within five (5) Business Days of completion of such tests a written notification certifying that the system has been installed and tested in compliance with the SIR, the utility accepted design and the equipment manufacturer's instructions. The applicant's

facility will be allowed to commence parallel operation upon satisfactory completion of the tests in Step 5. The applicant must have complied with, and must continue to comply with, all contractual and technical requirements.

## **STEP 6: Final Acceptance**

Within five (5) Business Days of receiving the written notification of successful test completion from Step 5, the utility will issue to the applicant a formal letter of acceptance for interconnection. Within five (5) Business Days of the completion of the on-site verification, the utility will issue to the applicant either a formal letter of acceptance for interconnection or a detailed explanation of the deficiencies in the system.

## **Section II. Interconnection Requirements**

### **A. Design Requirements**

#### **1. Common**

The generator-owner shall provide appropriate protection and control equipment, including a protective device that utilizes an automatic disconnect device that will disconnect the generation in the event that the portion of the utility system that serves the generator is de-energized for any reason or for a fault in the generator-owner's system. The generator-owner's protection and control equipment shall be capable of automatically disconnecting the generation upon detection of an islanding condition and upon detection of a utility system fault.

The type and size of the generation facility is based on electrical generator nameplate data (AC output).

The generator-owner's protection and control scheme shall be designed to ensure that the generation remains in operation when the frequency and voltage of the utility system is within the limits specified by the required operating ranges. Upon request from the utility, the generator-owner shall provide documentation detailing compliance with the requirements set forth in this document.

The specific design of the protection, control, and grounding schemes will depend on the size and characteristics of the generator-owner's generation, as well the generator-owner's load level, in addition to the characteristics of the particular portion of the utility's system where the generator-owner is interconnecting.

The generator-owner shall have, as a minimum, an automatic disconnect device(s) sized to meet all applicable local, state, and federal codes and operated by over and under voltage and over and under frequency protection. For three-phase installations, the over and under voltage function should be included for each phase and the over and under frequency protection on at least one phase. All phases of a generator or inverter interface shall disconnect for voltage or frequency trip conditions sensed by the protective devices. Voltage protection shall be wired phase to ground for single phase installations and for applications using wye grounded-wye grounded service transformers.

The settings below are listed for single-phase and three-phase applications using wye grounded-wye grounded service transformers or wye grounded-wye grounded isolation transformers. For

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applications using other transformer connections, a site-specific review will be conducted by the utility and the revised settings identified in Step 6 of the Application Process.

The requirements set forth in this document are intended to be consistent with those contained in the most current version of IEEE Std 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems. The requirements in IEEE Std 1547 above and beyond those contained in this document shall be followed and any other Standards included in or referenced to in IEEE Std 1547 shall be adhered to.

### **Voltage Response**

The required operating range for the generators shall be from 88% to 110% of nominal voltage magnitude. In addition, the generator shall not cause the system voltage at the PCC to deviate from a range of 95% to 105% of the utility system voltage. For excursions outside these limits the protective device shall automatically initiate a disconnect sequence from the utility system as detailed in the most current version of IEEE Std 1547. Clearing time is defined as the time the range is initially exceeded until the generator-owner's equipment ceases to energize the PCC and includes detection and intentional time delay. Other static or dynamic voltage functionalities shall be permitted as agreed upon by the utility and generator-owner.

### **Frequency Response**

The required operating range for the generators shall be from 59.3 Hz to 60.5 Hz. If deemed necessary due to abnormal system conditions the utility may request that the generator operate at frequency ranges below 59.3 Hz in coordination with the load shedding schemes of the utility system. For excursions outside these limits the protective device shall automatically initiate a disconnect sequence from the utility system as detailed in the most current version of IEEE Std 1547. Clearing time is defined as the time the range is initially exceeded until the generator-owner's equipment ceases to energize the PCC and includes detection and intentional time delay. Other static or dynamic frequency functionalities shall be permitted as agreed upon by the utility and generator-owner.

### **Reconnection to the Utility System**

If the generation facility is disconnected as a result of the operation of a protective device, the generator-owner's equipment shall remain disconnected until the utility's service voltage and frequency have recovered to acceptable voltage and frequency limits as defined in the most current version of IEEE Std 1547 for a minimum of five (5) minutes.

## **2. Synchronous Generators**

Synchronous generation shall require synchronizing facilities. These shall include automatic synchronizing equipment or manual synchronizing with relay supervision, voltage regulator, and power factor control.

For all synchronous generators sufficient reactive power capability shall be provided by the generator-owner to withstand normal voltage changes on the utility's system. The generator voltage VAR schedule, voltage regulator, and transformer ratio settings shall be jointly determined by the utility and the generator-owner to ensure proper coordination of voltages and regulator action. Generator-owners shall have synchronous generator reactive power capability

to withstand voltage changes up to 5% of the base voltage levels.

A voltage regulator must be provided and be capable of maintaining the generator voltage under steady state conditions within plus or minus 1.5% of any set point and within an operating range of plus or minus 5% of the rated voltage of the generator.

Generator-owners shall adopt one of the following grounding methods for synchronous generators:

- a) Solid grounding
- b) High- or low-resistance grounding
- c) High- or low-reactance grounding
- d) Ground fault neutralizer grounding

Synchronous generators shall not be permitted to connect to utility secondary network systems without the acceptance of the utility.

### **3. Induction Generators**

Induction generation may be connected and brought up to synchronous speed (as an induction motor) if it can be demonstrated that the initial voltage drop measured at the PCC is acceptable based on current inrush limits. The same requirements also apply to induction generation connected at or near synchronous speed because a voltage dip is present due to an inrush of magnetizing current. The generator-owner shall submit the expected number of starts per specific time period and maximum starting kVA draw data to the utility.

Starting or rapid load fluctuations on induction generators can adversely impact the utility's system voltage. Corrective step-switched capacitors or other techniques may be necessary. These measures can, in turn, cause ferroresonance. If these measures are installed on the customer's side of the PCC, the utility will review these measures and may require the customer to install additional equipment.

### **4. Inverters**

Direct current generation can only be installed in parallel with the utility's system using a synchronous inverter. The design shall be such as to disconnect this synchronous inverter upon a utility system event. Inverters intended to provide local grid support during system events that result in voltage and/or frequency excursions as described in Section II.A.1 shall be provided with the required onboard functionality to allow for the equipment to remain online for the duration of the event.

It is recommended that equipment be selected from the Department of Public Service "Certified Interconnection Equipment list" maintained on the Commission's website. Interconnected DG systems utilizing equipment not found in such list must meet all functional requirements of the current version of IEEE Std 1547 and be protected by utility grade relays (as defined in these requirements) using settings approved by the utility and verified in the field. The field verification test must demonstrate that the equipment meets the voltage and frequency requirements detailed in this section.

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Synchronization or re-synchronization of an inverter to the utility system shall not result in a voltage deviation that exceeds the requirements contained in Section II.E, Power Quality. Only inverters designed to operate in parallel with the utility system shall be utilized for that purpose.

## 5. Minimum Protective Function Requirements

Protective system requirements for distributed generation facilities result from an assessment of many factors, including but not limited to:

- Type and size of the distributed generation facility
- Voltage level of the interconnection
- Location of the distributed generation facility on the circuit
- Distribution transformer
- Distribution system configuration
- Available fault current
- Load that can remain connected to the distributed generation facility under isolated conditions
- Amount of existing distributed generation on the local distribution system.

As a result, protection requirements cannot be standardized according to any single criteria. Minimum protective function requirements shall be as detailed in the table below. Function numbers, as detailed in the latest version of ANSI C37.2, are listed with each function. All voltage, frequency, and clearing time set points shall be field adjustable.

Synchronous Generators	Induction Generators	Inverters
Over/Under Voltage (Function 27/59)	Over/Under Voltage (Function 27/59)	Over/Under Voltage (Function
Over/Under Frequency (Function 81O/81U)	Over/Under Frequency (Function 81O/81U)	Over/Under Frequency (Function 81O/81U)
Anti-Islanding Protection	Anti-Islanding Protection	Anti-Islanding Protection

The need for additional protective functions shall be determined by the utility on a case- by-case basis. If the utility determines a need for additional functions, it shall notify the generator-owner in writing of the requirements. The notice shall include a description of the specific aspects of the utility system that necessitate the addition, and an explicit justification for the necessity of the enhanced capability. The utility shall specify and provide settings for those functions that the utility designates as being required to satisfy protection practices. Any protective equipment or setting specified by the utility shall not be changed or modified at any time by the generator-owner without written consent from the utility.

The generator-owner shall be responsible for ongoing compliance with all applicable local, state, and federal codes and standardized interconnection requirements as they pertain to the interconnection of the generating equipment. Protective devices shall utilize their own current transformers and potential transformers and not share electrical equipment associated with utility revenue metering.

A failure of the generator-owner's protective devices, including loss of control power, shall open the automatic disconnect device, thus disconnecting the generation from the utility system. A generator-owner's protection equipment shall utilize a non-volatile memory design such that a loss of internal or external control power, including batteries, will not cause a loss of interconnection protection functions or loss of protection set points.

All interface protection and control equipment shall operate as specified independent of the calendar date.

## **B. Operating Requirements**

The generator-owner shall provide a 24-hour telephone contact. This contact will be used by the utility to arrange access for repairs, inspection, or emergencies. The utility will make such arrangements (except for emergencies) during normal business hours.

Voltage and frequency trip set point adjustments shall be accessible to service personnel only.

Any changes to these settings must be reviewed and approved by the utility.

The generator-owner shall not supply power to the utility during any outages of the utility system that serves the PCC. The generator-owner's generation may be operated during such outages only with an open tie to the utility. Islanding will not be permitted. The generator-owner shall not energize a de-energized utility circuit for any reason.

The disconnect switch specified may be opened by the utility at any time for any of the following reasons:

- a. to eliminate conditions that constitute a potential hazard to utility personnel or the general public;
- b. pre-emergency or emergency conditions on the utility system;
- c. a hazardous condition is revealed by a utility inspection;
- d. protective device tampering;
- e. parallel operation prior to utility approval to interconnect.

The disconnect switch may be opened by the utility for the following reasons, after notice to the responsible party has been delivered and a reasonable time to correct (consistent with the conditions) has elapsed:

- a. A generator-owner has failed to make available records of verification tests and maintenance of its protective devices;
- b. A generator-owner's system adversely impacts the operation of utility equipment or equipment belonging to other utility customers;
- c. A generator-owner's system is found to adversely affect the quality of service to

adjoining customers.

The utility will provide a name and telephone number so that the generator-owner can obtain information about the utility lock-out.

The generator-owner shall be allowed to disconnect from the utility without prior notice in order to self-generate.

If a generator-owner proposes any modification to the system that has an impact on the interface at the PCC after it has been installed and a contract between the utility and the generator-owner has already been executed, then any such modifications must be reviewed and approved by the utility before the modifications are made.

ESS shall only be allowed to charge from the DG and not from the electric utility system.

### **C. Dedicated Transformer**

The utility reserves the right to require a power-producing facility to connect to the utility system through a dedicated transformer. The transformer shall either be provided by the connecting utility at the generator-owner's expense, purchased from the utility, or conform to the connecting utility's specifications. The transformer that is part of the normal electrical service connection of a generator-owner's facility may meet this requirement if there are no other customers supplied from it. A dedicated transformer is not required if the installation is designed and coordinated with the utility to protect the utility system and its customers adequately from potential detrimental net effects caused by the operation of the generator.

If the utility determines a need for a dedicated transformer, it shall notify the generator-owner in writing of the requirements. The notice shall include a description of the specific aspects of the utility system that necessitate the addition, the conditions under which the dedicated transformer is expected to enhance safety or prevent detrimental effects, and the expected response of a normal, shared transformer installation to such conditions.

### **D. Disconnect Switch**

Generating equipment shall be capable of being isolated from the utility system by means of an external, manual, visible, gang-operated, load break disconnecting switch. The disconnect switch shall be installed, owned, and maintained by the customer-generator, and located between the generating equipment and its interconnection point with the utility system.

The disconnect switch must be rated for the voltage and current requirements of the installation.

The basic insulation level (BIL) of the disconnect switch shall be such that it will coordinate with that of the utility's equipment. Disconnect devices shall meet applicable requirements of the most current revision of UL, ANSI, and IEEE standards, and shall be installed to meet all applicable local, state, and federal codes. (New York City Building Code may require additional certification.)

The disconnect switch shall be clearly marked, "Generator Disconnect Switch," with permanent 3/8 inch or larger letters.

The customer-generator will propose, and the utility will approve, the location of the disconnect switch. The location and nature of the disconnect switch shall be indicated in the immediate proximity of the electric service entrance. The disconnect switch shall be readily accessible for operation and locking by utility personnel in accordance with Section II.B, Operating Requirements. The disconnect switch must be lockable in the open position with a 3/8" shank utility padlock.

#### **E. Power Quality**

The maximum harmonic limits for electrical equipment shall be in accordance with the latest version of IEEE Std 519 IEEE Recommended Practices and Requirements for Harmonic Control in Electric Power Systems to limit the maximum individual frequency voltage harmonic to 3% of the fundamental frequency and the total harmonic distortion (THD) to 5% on the utility side of the PCC. Mitigation measures necessary to comply with these requirements shall at the generator-owner's expense.

#### **F. Power Factor**

If the average power factor, as measured at the PCC, is less than 0.9 (leading or lagging), the method of power factor correction necessitated by the installation of the generator will be negotiated with the utility as a commercial item. If the average power factor of the generator is proven to be above the minimum of 0.9 (leading or lagging) by the customer and accepted by the utility, that power factor value shall be used for any further utility design calculations and requirements.

Induction power generators may be provided VAR capacity from the utility system at the generator-owner's expense. The installation of VAR correction equipment by the generator-owner on the generator-owner's side of the PCC must be reviewed and approved by the utility prior to installation.

#### **G. Islanding**

Systems must be designed and operated so that islanding is not sustained on utility distribution circuits or on substation bus and transmission systems. The requirements listed in this document are designed and intended to prevent islanding. Special protection schemes and system modifications may be necessary based on the capacity of the proposed system and the configuration and existing loading on the subject circuit.

#### **H. Equipment Certification**

In order for the equipment to be acceptable for interconnection to the utility system without additional protective devices, the interface equipment must be equipped with the minimum protective function requirements listed in the table in Section II.A.5 and be tested by a Nationally Recognized Testing Laboratory (NRTL) recognized by the United States Occupational Safety and Health Administration (OSHA) in compliance with the most current revision of UL 1741.

For each interconnection application, documentation including the proposed equipment certification, stating compliance with UL 1741 by an NRTL, shall be provided by the applicant

to the utility. Supporting information from an NRTL website or UL's website stating compliance is acceptable for documentation.

If an equipment manufacturer, vendor, or any other party desires, documentation indicating compliance as stated above may be submitted to the Department of Public Service for listing under the "Certified Interconnection Equipment (Certified Equipment)" list on the Commission's website (<http://www.dps.ny.gov/distgen.htm>).

Certification information for equipment tested and certified to the most current revision of UL 1741 by a non-NRTL shall be provided by the manufacturer, or vendor to the contacts listed on the Public Service Commission's website (<http://www.dps.ny.gov/distgen.htm>) for review before final acceptance and posting under the Certified Equipment list. Utilities are not responsible for reviewing and approving equipment tested and certified by a non-NRTL.

If equipment is UL 1741 certified by an NRTL and compliance documentation is submitted to the utility, the utility shall accept such equipment for interconnection in New York State. All equipment certified to the most current revision of UL 1741 by an NRTL shall be deemed 'certified equipment' even if it does not appear on the Commission's website under the Certified Equipment list.

Utility grade relays need not be certified per the requirements of this section.

For DG systems that are already interconnected with the utility's electrical system and seek to use the New York State Standardized Interconnection Requirements and Application Process in order to qualify for net metering, no DG system will be required to obtain recertification the latest equipment certification standards, as long as the DG system met the equipment certification requirements by the utility in effect at the time of the DG unit's interconnection.

## **I. Verification Testing**

All interface equipment must include a verification test procedure as part of the documentation presented to the utility. Except for the case of small single-phase inverters as discussed later, the verification test must establish that the protection settings meet the SIR requirements. The verification testing may be site-specific and is conducted periodically to assure continued acceptable performance.

Upon initial parallel operation of a generating system, or any time interface hardware or software is changed, the verification test must be performed. A qualified individual must perform verification testing in accordance with the manufacturer's published test procedure. Qualified individuals include professional engineers, factory-trained and certified technicians, and licensed electricians with experience in testing protective equipment. The utility reserves the right to witness verification testing or require written certification that the testing was successfully performed.

Verification testing shall be performed at least once every four years. All verification tests prescribed by the manufacturer shall be performed. If wires must be removed to perform certain tests, each wire and each terminal must be clearly and permanently marked. The generator-owner shall maintain verification test reports for inspection by the utility.

Systems shall be verified upon initial parallel operation and once every four years as follows: the generator-owner shall interrupt the utility source and verify that the equipment automatically

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disconnects and does not reconnect for at least five minutes after the utility source is reconnected. The owner shall maintain a log of these operations for inspection by the connecting utility. Any system that depends upon a battery for trip power shall be checked and logged at least annually for proper voltage. Once every four (4) years the battery must be either replaced or a discharge test performed.

### Section III. Glossary of Terms

**Automatic Disconnect Device:** An electronic or mechanical switch used to isolate a circuit or piece of equipment from a source of power without the need for human intervention.

**Business Day:** Monday through Friday, excluding utility holidays.

**Cease to Energize:** Cessation of energy flow capability.

**Customer-Generator:** A utility customer who owns or operates electric generating equipment located and used at the customer's premises, and/or the utility customer's agent.

**Dedicated Transformer:** A transformer installed by the utility to isolate a DG system.

**Disconnect (verb):** To isolate a circuit or equipment from a source of power. If isolation is accomplished with a solid-state device, "Disconnect" shall mean to cease the transfer of power.

**Disconnect Switch:** A mechanical device used for isolating a circuit or equipment from a source of power.

**Energy Storage System (ESS):** A commercially-available mechanical, electrical or electro-chemical means to store and release electrical energy, and its associated electrical inversion device and control functions that may stand-alone or be paired with a distributed generator at a point of common coupling.

**Generator-Owner:** An applicant to operate on-site power generation equipment in parallel with the utility grid per the requirements of this document.

**Islanding:** A condition in which a portion of the utility system that contains both load and distributed generation is isolated from the remainder of the utility system. (Adopted from IEEE Std 929.)

**Point of Common Coupling (PCC):** The point at which the interconnection between the electric utility and the customer interface occurs. Typically, this is the customer side of the utility revenue meter.

**Protective Device:** A device that continuously monitors a designated parameter related to the operation of the generation system that operates if preset limits are exceeded.

**Required Operating Range:** The range of magnitudes of the utility system voltage or frequency where the generator-owner's equipment, if operating, is required to remain in operation for the purposes of compliance with UL 1741. Excursions outside these ranges must result in the automatic disconnection of the generation within the prescribed time limits.

**Safety Equipment:** Includes dedicated transformers or equipment and facilities to protect the safety and adequacy of electric service provided to other customers.

**Solar Applicant:** An applicant who is proposing to install a photovoltaic generating system, not to exceed 15 kW.

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**Verification Test:** A test performed upon initial installation and repeated periodically to determine that there is continued acceptable performance.

**Wind, Applicant:** An applicant who is proposing to install a wind electric generating system, not to exceed a combined rated capacity of 15 kW.



## **APPENDIX A**

### **NEW YORK STATE STANDARDIZED CONTRACT FOR INTERCONNECTION OF NEW DISTRIBUTED GENERATION UNITS WITH CAPACITY OF 15 kW OR LESS CONNECTED IN PARALLEL WITH UTILITY DISTRIBUTION SYSTEMS**

#### **Customer Information:**

Name:

Address:

Telephone:

Fax:

Email:

Unit Application/File No.:

#### **Utility Information:**

Name:

Address:

Telephone:

Fax:

Email:

Utility Account Number:

## DEFINITIONS

**Dedicated Facilities** means the equipment and facilities on the Utility's system necessary to permit operation of the Unit in parallel with the Utility's system.

**Delivery Service** means the services the Utility may provide to deliver capacity or energy generated by Customer to a buyer to a delivery point(s), including related ancillary services.

**"Net energy metering"** means the use of a net energy meter to measure, during the billing period applicable to a customer-generator, the net amount of electricity supplied by an electric corporation and provided to the corporation by a customer-generator.

**"SIR"** means the New York State Standardized Interconnection Requirements for new distributed generation units with a nameplate capacity of 15 kW or less connected in parallel with the Utility's distribution system.

**"Unit"** means the distributed generation unit with a nameplate capacity of 15 kW or less located on the Customer's premises at the time the Utility approves such Unit for operation in parallel with the Utility's system. This Agreement relates only to such Unit, but a new agreement shall not be required if the Customer makes physical alterations to the Unit that do not result in an increase in its nameplate generating capacity. The nameplate generating capacity of the Unit shall not exceed 15 kW.

## I. TERM AND TERMINATION

**1.1 Term:** This Agreement shall become effective when executed by both Parties and shall continue in effect until terminated.

**1.2 Termination:** This Agreement may be terminated as follows:

- a. The Customer may terminate this Agreement at any time, by giving the Utility sixty (60) days' written notice.
- b. Failure by the Customer to seek final acceptance by the Utility within twelve (12) months after completion of the utility construction process described in the SIR shall automatically terminate this Agreement.
- c. Either Party may, by giving the other Party at least sixty (60) days' prior written notice, terminate this Agreement in the event that the other Party is in default of any of the material terms and conditions of this Agreement. The terminating Party shall specify in the notice the basis for the termination and shall provide a reasonable opportunity to cure the default.
- d. The Utility may, by giving the customer at least sixty (60) days' prior written notice, terminate this Agreement for cause. The Customer's non-compliance with an upgrade to the SIR, unless the Customer's installation is "grandfathered," shall constitute good cause.

**1.3 Disconnection and Survival of Obligations:** Upon termination of this Agreement the Unit will be disconnected from the Utility'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.

**1.4 Suspension:** This Agreement will be suspended during any period in which the Customer is not eligible for delivery service from the Utility

## II. SCOPE OF AGREEMENT

**2.1 Scope of Agreement:** This Agreement relates solely to the conditions under which the Utility and the Customer agree that the Unit may be interconnected to and operated in parallel with the Utility's system.

**2.2 Electricity Not Covered:** The Utility shall have no duty under this Agreement to account for, pay for, deliver, or return in kind any electricity produced by the Facility and delivered into the Utility's System unless the system is net metered.

### III. INSTALLATION, OPERATION AND MAINTENANCE OF UNIT

**3.1 Compliance with SIR:** Subject to the provisions of this Agreement, the Utility shall be required to interconnect the Unit to the Utility's system, for purposes of parallel operation, if the Utility accepts the Unit as in compliance with the SIR. The Customer shall have a continuing obligation to maintain and operate the Unit in compliance with the SIR.

**3.2 Observation of the Unit - Construction Phase:** The Utility may, in its discretion and upon reasonable notice, conduct reasonable on-site verifications during the construction of the Unit. Whenever the Utility chooses to exercise its right to conduct observations herein it shall specify to the Customer its reasons for its decision to conduct the observation. For purposes of this paragraph and paragraphs 3.3 through 3.5, the term "on-site verification" shall not include testing of the Unit, and verification tests shall not be required except as provided in paragraphs 3.3 and 3.4.

**3.3 Observation of the Unit - Ten-day Period:** The Utility may conduct on-site verifications of the Unit and observe the execution of verification testing within a reasonable period of time, not exceeding ten (10) business days after system installation. The applicant's facility will be allowed to commence parallel operation upon satisfactory completion of the verification test. The applicant must have complied with and must continue to comply with all contractual and technical requirements.

**3.4 Observation of the Unit - Post-Ten-day Period:** If the Utility does not perform an on-site verification of the Unit and observe the execution of verification testing within the ten-day period, the Customer will send the Utility within five (5) days of the verification testing a written notification certifying that the Unit has been installed and tested in compliance with the SIR, the utility-accepted design and the equipment manufacturer's instructions. The Customer may begin to produce energy upon satisfactory completion of the verification test. After receiving the verification test notification, the Utility will either issue to the Customer a formal letter of acceptance for interconnection, or may request that the applicant and utility set a date and time to conduct an on-site verification of the Unit and make reasonable inquiries of the Customer, but only for purposes of determining whether the verification tests were properly performed. The Customer shall not be required to perform the verification tests a second time, unless irregularities appear in the verification test report or there are other objective indications that the tests were not properly performed in the first instance.

**3.5 Observation of the Unit - Operations:** The Utility may conduct on-site verification of the operations of the Unit after it commences operations if the Utility has a reasonable basis for doing so based on its responsibility to provide continuous and reliable utility service or as authorized by the provisions of the Utility's Retail Electric Tariff relating to the verification of customer installations generally.

**3.6 Costs of Dedicated Facilities:** During the term of this Agreement, the Utility shall design, construct and install the Dedicated Facilities. The Customer shall be responsible for paying the incremental capital cost of such Dedicated Facilities attributable to the Customer's Unit. All costs associated with the operation and maintenance of the Dedicated Facilities after the Unit first produces energy shall be the responsibility of the Utility.

#### IV. DISCONNECTION OF THE UNIT

**4.1 Emergency Disconnection:** The Utility may disconnect the Unit, without prior notice to the Customer (a) to eliminate conditions that constitute a potential hazard to Utility personnel or the general public; (b) if pre-emergency or emergency conditions exist on the Utility system; (c) if a hazardous condition relating to the Unit is observed by a Utility inspection; or (d) if the Customer has tampered with any protective device. The Utility shall notify the Customer of the emergency if circumstances permit.

**4.2 Non-Emergency Disconnection:** The Utility may disconnect the Unit, after notice to the responsible party has been provided and a reasonable time to correct, consistent with the conditions, has elapsed, if (a) the Customer has failed to make available records of verification tests and maintenance of his protective devices; (b) the Unit system interferes with Utility equipment or equipment belonging to other customers of the Utility; (c) the Unit adversely affects the quality of service of adjoining customers.

**4.3 Disconnection by Customer:** The Customer may disconnect the Unit at any time.

**4.4 Utility Obligation to Cure Adverse Effect:** If, after the Customer meets all interconnection requirements, the operations of the Utility are adversely affecting the performance of the Unit or the Customer's premises, the Utility shall immediately take appropriate action to eliminate the adverse effect. If the Utility determines that it needs to upgrade or reconfigure its system the Customer will not be responsible for the cost of new or additional equipment beyond the point of common coupling between the Customer and the Utility.

#### V. ACCESS

**5.1 Access to Premises:** The Utility shall have access to the disconnect switch of the Unit at all times. At reasonable hours and upon reasonable notice consistent with Section III of this Agreement, or at any time without notice in the event of an emergency (as defined in paragraph 4.1), the Utility shall have access to the Premises.

**5.2 Utility and Customer Representatives:** The Utility shall designate, and shall provide to the Customer, the name and telephone number of a representative or representatives who can be reached at all times to allow the Customer to report an emergency and obtain the assistance of the Utility. For the purpose of allowing access to the premises, the Customer shall provide the Utility with the name and telephone number of a person who is responsible for providing access to the Premises.

**5.3 Utility Right to Access Utility-Owned Facilities and Equipment:** If necessary for the purposes of this Agreement, the Customer shall allow the Utility access to the Utility's equipment and facilities located on the Premises. To the extent that the Customer does not own all or any part of the property on which the Utility is required to locate its equipment or facilities to serve the Customer under this Agreement, the Customer shall secure and provide in favor of the Utility the necessary rights to obtain access to such equipment or facilities, including easements if the circumstances so require.

## VI. DISPUTE RESOLUTION

**6.1 Good Faith Resolution of Disputes:** Each Party agrees to attempt to resolve all disputes arising hereunder promptly, equitably and in a good faith manner.

**6.2 Mediation:** If a dispute arises under this Agreement, and if it cannot be resolved by the Parties within ten (10) business days after written notice of the dispute, the parties agree to submit the dispute to mediation by a mutually acceptable mediator, in a mutually convenient location in New York State, in accordance with the then current CPR Institute for Dispute Resolution Mediation Procedure, or to mediation by a mediator provided by the New York Public Service Commission. The Parties agree to participate in good faith in the mediation for a period of up to 90 days. If the Parties are not successful in resolving their disputes through mediation, then the parties may refer the dispute for resolution to the New York Public Service Commission, which shall maintain continuing jurisdiction over this Agreement.

**6.3 Escrow:** If there are amounts in dispute of more than two thousand dollars (\$2,000), the Customer shall either place such disputed amounts into an independent escrow account pending final resolution of the dispute in question, or provide to the Utility an appropriate irrevocable standby letter of credit in lieu thereof.

## VII. INSURANCE

**7.1** The Customer is not required to provide general liability insurance coverage as part of this Agreement, the SIR, or any other Utility requirement. Due to the risk of incurring damages however, the Public Service Commission recommends that every distributed generation customer protect itself with insurance.

**7.2 Effect:** The inability of the Utility to require the Customer to provide general liability insurance coverage for operation of the Unit is not a waiver of any rights the Utility may have to pursue remedies at law against the Customer to recover damages.

## VIII. MISCELLANEOUS PROVISIONS

**8.1 Beneficiaries:** This Agreement is intended solely for the benefit of the Parties hereto, and if a Party is an agent, its principal. Nothing in this Agreement shall be construed to create any duty to, or standard of care with reference to, or any liability to, any other person.

**8.2 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.

**8.3 Entire Agreement:** This Agreement constitutes the entire Agreement between the Parties and supersedes all prior agreements or understandings, whether verbal or written.

**8.4 Waiver:** No delay or omission in the exercise of any right under this Agreement shall impair any such right or shall be taken, construed or considered as a waiver or relinquishment thereof, but any such right may be exercised from time to time and as often as may be deemed expedient. In the event that any agreement or covenant herein shall be breached and thereafter waived, such waiver shall be limited to the particular breach so waived and shall not be deemed to waive any other breach hereunder.

**8.5 Applicable Law:** This Agreement shall be governed by and construed in accordance with the law of the State of New York.

**8.6 Amendments:** This Agreement shall not be amended unless the amendment is in writing and signed by the Utility and the Customer.

**8.7 Force Majeure:** For purposes of this Agreement, "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. 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.

**8.8 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 Utility. Such consent will not be withheld unless the Utility can demonstrate that the corporate entity is not reasonably capable of performing the obligations of the assigning Customer under this Agreement.

**8.9 Assignment to Individuals:** At any time during the term, the 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 Unit.

**8.10 Permits and Approvals:** Customer shall obtain all environmental and other permits lawfully required by governmental authorities prior to the construction and for the operation of the Unit during the term of this Agreement.

**8.11 Limitation of Liability:** Neither by inspection, if any, or non-rejection, nor in any other way, does the Utility 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 Unit and any structures, equipment, wires, appliances or devices appurtenant thereto.

**ACCEPTED AND AGREED:**

**Customer Signature:**

**Printed Name:**

**Title:**

**Date:**

**Utility Signature:**

**Printed Name:**

**Title:**

**Date:**



**NEW YORK STATE STANDARDIZED APPLICATION FOR  
INTERCONNECTION OF INVERTER BASED PARALLEL  
GENERATION EQUIPMENT TO THE ELECTRIC SYSTEM OF**

**Utility:**

**Customer:**

Name: Phone: (     )  
Address: Fax: (     )  
Email:  
Municipality:  
Utility Account No.: Utility Meter No.:

**Agent (if any):**

Name: Phone: (     )  
Address: Fax: (     )  
Email:

**Consulting Engineer or Contractor:**

Name: Phone: (     )  
Address: Fax: (     )  
Email:

**Existing Electric Service:**

Capacity: \_\_\_\_\_Amperes

Voltage: \_\_\_\_\_Volts

Service Character:    (   ) SinglePhase        (   ) ThreePhase

**Location of Protective Interface Equipment on Property:**

*(Include address if different from customer address.)*

**Energy Producing Inverter Information:**

Total AC Nameplate Rating of All Inverters:

Inverter

Inverter or System Tested to UL 1741 (most current version):

☐ Yes   ☐ No   *If no, attach product literature.*

Manufacturer:

Model:

Quantity:

Rating per inverter: \_\_\_\_\_kW

Type: ☐ Forced Commutated   ☐ Line Commutated  
☐ Utility Interactive   ☐ Stand Alone

Rated Output: \_\_\_\_\_Amperes   \_\_\_\_\_Volts

Ramp Rate:

Method of Grounding: ☐ Grounded   ☐ Ungrounded

Quantity of Inverters:

*If there is more than one inverter of different types of manufacturers, please provide information on a separate sheet.*

If applicable:

Step Up Transformer Winding Configuration:

☐ Wye-Wye   ☐ Wye-Delta   ☐ Delta-Wye

Other existing DG such as emergency generators, other renewable technologies, microturbines, hydro, fuel cells, battery storage, etc:

☐ Yes   ☐ No*If yes, provide information about existing generation on separate sheet and include detail on one-line diagram.***Signature:**\_\_\_\_\_  
CUSTOMER/AGENT SIGNATURE\_\_\_\_\_  
TITLE\_\_\_\_\_  
DATE