

## INTERCONNECTION APPLICATION

**For a Level 2, 3 or 4 Review – Applicants proposing to install generation approaching 2,000 kW or larger should contact the EDC for guidance in determining the appropriate application process.**

*(To be filled out and submitted prior to installation)*

### **CUSTOMER GENERATOR CONTACT INFORMATION**

#### **Legal Name and Mailing Address of Customer-Generator: (if an Individual, Individual's Name)**

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Contact Person (If other than Above): \_\_\_\_\_

Mailing Address (If other than Above): \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

#### **Alternative Contact Information: (if different from Customer-Generator above)**

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

#### **The Customer-Generator Facility's Information:**

Facility Address: \_\_\_\_\_

City: \_\_\_\_\_ State: PA Zip Code: \_\_\_\_\_

Nearest Crossing Street: \_\_\_\_\_

Electric Distribution Company ("EDC"): Select Utility \_\_\_\_\_

Account #: \_\_\_\_\_ Meter #: \_\_\_\_\_

Existing Service Voltage: \_\_\_\_\_ VAC Existing Service Capacity: \_\_\_\_\_ Amps Select Phase:

Current Annual Energy Consumption: \_\_\_\_\_ kWh Estimated In-service Date: \_\_\_\_\_

Do you plan to export power? Select \_\_\_\_\_

If Yes, Estimated Maximum: \_\_\_\_\_ kW<sub>AC</sub>, Estimated Gross Annual Energy Production: \_\_\_\_\_ kWh

One-line Diagram Attached (Required): Select Site Plan Attached (Required): Select

Energy Source: Select Gross Generator Rating: \_\_\_\_\_ kW<sub>AC</sub>

Utility Accessible Disconnect or Lock Box: Select \_\_\_\_\_

**Requested Level of Review:** Select \_\_\_\_\_

Type of Generation Equipment: \_\_\_\_\_



**Customer-Generator Signature:**

I hereby certify that to the best of my knowledge, all of the information provided in this Application is accurate.

Legal Name of Customer-Generator: \_\_\_\_\_

Customer-Generator Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

**Customer-Generator Equipment Information for Inverter Based Systems  
(May be applicable to a Level 2, 3 or 4 Review)**

**DC Source information;**

Energy Source: Select \_\_\_\_\_

DC Source Rating: \_\_\_\_\_ kW<sub>DC</sub>

Nominal DC Voltage: \_\_\_\_\_ V<sub>DC</sub>

Ampere Rating: \_\_\_\_\_ Amps<sub>DC</sub>

**Inverter Information:**

Inverter Manufacturer: \_\_\_\_\_

Inverter Type; Select Type \_\_\_\_\_

Model Number of Inverter; \_\_\_\_\_

Number of Units: \_\_\_\_\_

Inverter Rating: \_\_\_\_\_ kW<sub>AC</sub>

Voltage Rating: \_\_\_\_\_ Volts<sub>AC</sub>

Ampere Rating: \_\_\_\_\_ Amps<sub>AC</sub>

Power Factor: \_\_\_\_\_ %,

Number of Phases:Select

Frequency: \_\_\_\_\_ Hz,

IEEE1547/UL1741 Certification: Select

Evidence of Certification attached: Select

**Customer-Generator Equipment Information for Parallel Rotating Equipment Based Systems  
(May be applicable to a Level 3 or 4 Review)**

It is anticipated that many projects proposing to utilize directly coupled rotating generation may not have the specific information necessary for the EDC to adequately evaluate the impact of the proposed facility on the EDC's electrical distribution system at the time of the initial application. Often times the equipment for which this information is needed hasn't been specified. The type information necessary may be conveyed during a scoping meeting or other correspondence early on during the project development. Depending on the nature of the project, this is often an iterative process. Different EDC's analytical systems may require that data be provided conforming to specific standard formats which will be conveyed by the EDC. While not all inclusive, examples of the information commonly required are as follows:

**For Synchronous Machines:** Copies of the Saturation Curve and the Vee Curve - Salient vs. Non-Salient - Torque: (lb-ft) - Rated RPM - Field Amperes at rated generator voltage and current and % PF over-excited - Maximum Leading and Lagging Reactive Output Power - Type of Exciter - Output Power of Exciter - Type of Voltage Regulator - Direct-axis Synchronous Reactance ( $X_d$ ) ohms - Direct-axis Transient Reactance ( $X'_d$ ) ohms - Direct-axis Sub-transient Reactance ( $X''_d$ ) ohms - Rated Nominal Frequency

**For Induction Machines:** Rotor Resistance ( $R_r$ ) ohms - Exciting Current (Amps) - Rotor Reactance ( $X_r$ ) (ohms) - VARs (No Load) - Magnetizing Reactance ( $X_m$ ) - Stator Resistance ( $R_s$ ) - VARs (Full Load) - Stator Reactance ( $X_s$ ) - Short Circuit Reactance ( $X''_d$ ) - Number of Phases - Frame Size - Design Letter - Temp. Rise °C

**Protective Equipment:** The Customer-Generator shall design a protective scheme that will provide the protective functions specified in IEEE 1547 and submit it to the EDC for review & acceptance. The submittal shall include a single line drawing showing the location of instrument transformers (current and voltage) and the location of the relays, breakers and fuses. Indicate the manufacturer and model number of each type of device. Breaker data shall include continuous and interrupting ampere ratings. If relays are used, indicate function, the tripping source and its voltage.

**Isolation Transformer:** Manufacturer - Manufacturer reference number - Nominal Voltage Ratio  
– High / Low Voltage Taps - Number of Units - Rated kVA – Percentage Impedance @ kVA base –  
High / Low Voltage Winding Configuration

## Level 2, 3 or 4 Interconnection Agreement

This Interconnection Agreement ("Agreement") is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, by Duquesne Light Co., ("Electric Distribution Company" or "EDC"), and \_\_\_\_\_ ("Customer-Generator"), each hereinafter sometimes referred to individually as "Party" or both referred to collectively as the "Parties". In consideration of the mutual covenants set forth herein, the Parties agree as follows:

- 1) **Scope of Agreement** -- This Agreement sets forth the conditions under which the EDC and the Customer-Generator agree that one or more generating facilities as further described in Attachment A, with an installed nameplate gross capacity of \_\_\_\_\_ kW ("Facility" or "Facilities") may be interconnected to the EDC's distribution system. This Agreement is applicable to interconnection requests governed by the rules and Regulations of the Pennsylvania Public Utility Commission.
  
- 2) **Construction of the Customer-Generator Facility.** The Customer-Generator may proceed to construct (including operational testing not to exceed 2 hours) the Customer-Generator Facility once the approval to install the Customer-Generator Facility has been received from the EDC. The Customer-Generator Facility shall be constructed in accordance with information provided in the Interconnection Application, IEEE 1547 and the Pennsylvania Public Utility Commission's Regulations.

The Applicant shall notify the EDC of any changes to the proposed Customer-Generator Facility that would be subject to the criteria for a Level 2, 3 or 4 review (E.G., Inverter Manufacturer/Model Number, Size, etc.).

Once an Interconnection Request is deemed complete, any modification to the proposed Customer-Generator Facility that would affect the application review criteria for a Level 2, 3 or 4 review that is not agreed to in writing by the EDC, shall require

submission of a new Interconnection Application, subject to the provisions of the Pennsylvania Public Utility Commission's rules and Regulations.

- 3) **Interconnection and Operation.** The Customer-Generator may interconnect and operate the Customer-Generator Facility with the EDC's system once all of the following have occurred:
- a) **Electrical Inspection:** Upon completing construction, the Customer-Generator shall have the Customer-Generator Facility inspected or otherwise certified by the local electrical wiring inspection authority having jurisdiction, that the facility meets the requirements of the National Electric Code.
  - b) **Certificate of Completion:** The Applicant shall provide the EDC with a completed copy of the Certificate of Completion, including evidence of the electrical inspection by the local authority having jurisdiction. The evidence of completion of the electrical inspection may be provided on inspection forms used by local inspecting authorities.
  - c) **Inspection:** The EDC has either completed its inspection or waived the right to inspection in this Agreement. After receipt of the Certificate of Completion, the EDC may, upon reasonable notice and at a mutually convenient time, conduct an inspection of the Customer-Generator Facility and observe a Witness Test to ensure that all equipment has been appropriately installed and that all electrical connections have been made in accordance with its requirements.
  - d) **Metering:** Revenue quality metering equipment shall be installed and tested by the EDC. (Note: The EDC may allow interconnected operations prior to the meter installation.)
  - e) **Acceptance:** The EDC's representative has signed and returned the Certificate of Completion or provided notification by electronic mail or other acceptable means that the requirements for interconnection are complete and interconnection of the Customer-Generator Facility is accepted for parallel operation.

- 4) **Periodic Testing.** All interconnection-related protective functions and associated batteries shall be periodically tested at intervals specified by the manufacturer, system integrator, or authority that has jurisdiction over the Customer-Generator Facility interconnection. Periodic test reports or a log for inspection shall be maintained.
  
- 5) **Safe Operations and Maintenance.** The Customer-Generator shall be fully responsible to operate, maintain, and repair the Customer-Generator Facility as required to ensure that the Customer-Generator Facility complies at all times with the interconnection standards it has been certified to meet.
  
- 6) **Access.** The EDC shall have access to the metering equipment and the disconnecting means of the Customer-Generator Facility at all times. The EDC shall provide reasonable notice to the Customer-Generator, when possible, prior to using its right of access. In an emergency or outage situation, where there is no access to an AC disconnecting means such as a switch or breaker, the EDC may disconnect the service to the premises.
  
- 7) **Exterior AC Disconnect Switch / Isolation Device.** Small generator facilities shall be capable of being isolated from the EDC by means of a lockable, visible-break isolation device accessible by the EDC. The isolation device shall be installed, owned and maintained by the Customer-Generator and located between the small generation facility and the point of interconnection. A draw-out type circuit breaker with a provision for padlocking at the draw-out position can be considered an isolation device for purposes of this requirement.

A Customer-Generator may elect to provide the EDC access to an isolation device that is contained in a building or area that may be unoccupied and locked or not otherwise readily accessible to the EDC, by installing a lockbox provided by the EDC that shall provide ready access to the isolation device. The Customer-Generator shall install the lockbox in a location that is readily accessible by the EDC and the Customer-Generator



shall permit the EDC to affix a placard in a location of its choosing that provides clear instructions to EDC operating personnel on access to the isolation device. The Customer-Generator, at its option, may provide and install both the lockbox and placard.

- 8) **Operations / Disconnection.** The EDC may temporarily disconnect the Customer-Generator Facility upon occurrence of the following conditions:
  - a) For scheduled outages upon reasonable notice,
  - b) For unscheduled outages or emergency conditions,
  - c) If the EDC determines that the Customer-Generator Facility does not operate in a manner consistent with this Application/Agreement,
  - d) If the EDC determines that continued operation of the Customer-Generator Facility is a safety hazard to the EDC's personnel or to the general public,
  - e) In the event the interconnection equipment used by the Customer-Generator Facility is de-listed by the Nationally Recognized Testing Laboratory that provided the listing at the time the interconnection was approved and the EDC ascertains that the continued operation has the potential to cause a safety, reliability or a power quality problem.
  
- 9) **Indemnification.** The Parties shall at all times indemnify, defend, and save the other Party harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or inactions of its obligations under these terms and conditions on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.
  
- 10) **Limitation of Liability.** Each party's liability to the other party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or

arising from any act or omission in its performance of these terms and conditions, shall be limited to the amount of direct damage actually incurred. In no event shall either party be liable to the other party for any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever.

- 11) **Termination.** This Application/Agreement may be terminated under the following conditions:
  - a) By Customer-Generator. The Customer-Generator may terminate this Application/Agreement by providing written notice to the EDC.
  - b) By the EDC. The EDC may terminate this Application/Agreement if the Customer-Generator fails to remedy a violation of terms of this Application/Agreement upon written notice and a reasonable opportunity to cure.
  
- 12) **Permanent Disconnection.** In the event the Application/Agreement is terminated, the EDC shall have the right to disconnect its facilities or direct the Customer-Generator to disconnect its Customer-Generator Facility.
  
- 13) **Survival Rights.** This Application/Agreement shall continue in effect after termination to the extent necessary to allow or require either Party to fulfill its rights or obligations that arose under the Application/Agreement.
  
- 14) **Assignment/Transfer of Ownership of the Customer-Generator Facility:** This Application/Agreement shall survive the transfer of ownership of the Customer-Generator Facility to a new owner unless the new owner terminates this Application/Agreement and so notifies the EDC in writing. The EDC will be responsible for contacting the new customer to execute a new Application/Agreement or assignment agreement, in order for the new owner to be treated as a Net Metering customer.

- 15) **No Third Party Beneficiaries** - This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and, where permitted, their assigns.
- 16) **No Waiver** - The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered to waive the obligations, rights, or duties imposed upon the Parties.
- 17) **Definitions.** The capitalized terms used herein, and the definitions of such terms, are as those used in ANNEX A, TITLE 52. PUBLIC UTILITIES, PART 1. PUBLIC UTILITY COMMISSION, Subpart C., FIXED SERVICE UTILITIES, CHAPTER 75: ALTERNATIVE ENERGY PORTFOLIO STANDARDS, Subchapter C: “INTERCONNECTION STANDARDS.”
- 18) **Notice.** Unless otherwise provided in this Application/Agreement, any written notice, demand, or request required or authorized in connection with this Application/Agreement (“Notice”) shall be deemed properly given if delivered in person, sent by Electronic Mail (E-mail), sent by recognized national courier service, or sent by first class mail, postage prepaid, to the person specified below:

**If to EDC:**

The contact listed on the EDC website as the primary contact for the EDC listed in the Customer-Generator’s Facility Information section on Attachment A of this Interconnection Agreement.

**If to Customer-Generator:**

The contact listed in the Legal Name and Mailing Address of Customer-Generator section on Attachment A of this Interconnection Application. The Customer-Generator is responsible for notifying the EDC of any change in the contact party information.

In the event the original applicant sells or otherwise transfers ownership of the property listed in the Customer-Generator Facility's Information section listed on Attachment A of the Interconnection Agreement, the original applicant shall provide the EDC with the appropriate contact information for the new owner of the property. Upon any subsequent transfer of ownership, the then current owner shall provide the EDC with the new owner's information.

- 19) **Governing Law and Regulatory Authority** - This Agreement shall be governed by, interpreted, construed, and enforced in accordance with the laws of the Commonwealth of Pennsylvania. This Agreement is subject to, and the Parties' obligations hereunder include, operating in full compliance with all valid, applicable federal, state, and local laws or ordinances, and all applicable rules, regulations, orders of, and tariffs approved by, duly constituted regulatory authorities having jurisdiction.

20) **Multiple Counterparts** -- This Agreement may be executed in two counterparts, each of which is deemed an original but all constitute one and the same instrument.

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

Duquesne Light Company

Customer-Generator

BY: \_\_\_\_\_

BY: \_\_\_\_\_

NAME: \_\_\_\_\_

NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

## DESCRIPTION OF FACILITY

For a Level 2, 3 or 4 Review Interconnection Agreement <sup>1</sup>

### CUSTOMER-GENERATOR CONTACT INFORMATION

#### Legal Name and Mailing Address of Customer-Generator: (if an Individual, Individual's Name)

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Contact Person (If other than Above): \_\_\_\_\_

Mailing Address (If other than Above): \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

#### Alternative Contact Information: (if different from Customer-Generator above)

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

#### The Customer-Generator Facility's Information:

Facility Address: \_\_\_\_\_

City: \_\_\_\_\_ State: PA Zip Code: \_\_\_\_\_

Account #: \_\_\_\_\_ Meter #: \_\_\_\_\_

Do you plan to export power? Select

If Yes, Estimated Maximum: \_\_\_\_\_ kW<sub>AC</sub>, Estimated Gross Annual Energy Production: \_\_\_\_\_ kWh

One-line Diagram Attached (Required): Select Site Plan Attached (Required): Select

Energy Source: Select Gross Generator Rating: \_\_\_\_\_ kW<sub>AC</sub>

Utility Accessible Disconnect or Lock Box: Select

<sup>1</sup> Customers proposing to install generation greater than 2,000 kW are required to contact their EDC for the appropriate application procedures.