

**THE CONNECTICUT LIGHT AND POWER COMPANY**



**THE UNITED ILLUMINATING COMPANY**



## **Guidelines for Generator Interconnection**

**Fast Track and Study Processes**

**November 17, 2008**

**Excluding Inverter Based Projects 10 kW and Less**

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# SECTION 1

## 1.0 Introduction and Executive Summary

### 1.1 Introduction

**W**elcome! These Guidelines have been prepared by the Electric Distribution Companies, The Connecticut Light & Power Company (“CL&P”) and The United Illuminating Company (“UI”) (collectively, the “EDCs”), to assist power-generating customers wishing to interconnect with the Electric Power System (the “EPS”).

Capitalized terms used herein shall have the meanings specified in Attachment XI or the body of these Guidelines.

The EDCs are responsible for the distribution of electric power throughout most of the State of Connecticut. In order to carry out their responsibilities to all customers, each EDC must assure that all Interconnections are made according to certain protocols and procedures, which are described in more detail in these Guidelines.

These revised Guidelines have been simplified as follows: (i) the application process has been streamlined; and (ii) these Guidelines are harmonized with ISO-NE, Schedule 23, requirements based on FERC’s Small Generator Order-2006.

These Guidelines do not apply to inverter-based Generating Facilities of 10 kW and less. Separate guidelines, entitled “Guidelines for Certified Inverter Based Generating Facilities, 10 kW and Less,” were created for such Generating Facilities.

These Guidelines contemplate that a Generator and an EDC will work together toward the common goal of a successful Interconnection, and the EDCs may consider case specific exemptions to the Guidelines (*e.g.*, advances in technology). In the unlikely event that a Generator and an EDC cannot reach agreement on a specific Interconnection matter, such dispute will be resolved via formal dispute resolution procedures set forth in these Guidelines.

Generators intending to make an Interconnection are advised to (i) refer to the Technical Requirements, attached hereto as Exhibit B, for guidance in the design of the Generating Facility and the Interconnection Facility; (ii) consult with the appropriate EDC prior to purchase of equipment in connection with the proposed Interconnection; and (iii) contact the appropriate EDC Facilitator to determine where and how to apply.

The Connecticut Light & Power Company and The United Illuminating Company look forward to working with Generators to facilitate a safe, reliable and successful Interconnection in accordance with these Guidelines.

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## 1.2 Executive Summary

### **Interconnection Process for Generators smaller than 20 MW:**

These Interconnection Guidelines provide general guidance for interconnections of Generating Facilities that are smaller than 20 MW. Generating Facilities interconnections vary significantly in complexity depending on the generator size, location, and customer requirements; consequently, it is not practical to expect that these Guidelines should be rigidly observed for all interconnections and at all times. The Electric Distribution Company's (EDC's) Facilitator will work closely with the Generator to help achieve a successful interconnection.

This Executive Summary and the flow chart shown in Figure 1 provide a quick overview of the Interconnection process and are not meant to replace the more detailed description of requirements contained in the remainder of these Interconnection Guidelines.

The first step of the Interconnection process is to identify under which jurisdiction an Interconnection falls; the Federal Energy Regulatory Commission (FERC) or State of Connecticut (DPUC). Generators that intend to interconnect to the EPS and sell power or ancillary services to a third party or in the wholesale market may under certain circumstances fall under FERC jurisdiction. Generators that commit to sell their entire excess power to the EDC under NET Metering rules or to the EDC under the DPUC-approved tariff will be subject to state rules and such Generators can file an application directly with the EDC. State (DPUC) jurisdictional interconnection projects are administered by the EDC, while FERC jurisdictional projects are administered by the Independent System Operator – New England, Inc. (ISO-NE).

### **FERC Jurisdictional Interconnections:**

Generators seeking to Interconnect to the EPS whose Interconnections fall under FERC's jurisdiction must submit their application to ISO-NE in accordance with the procedures in the ISO-NE Transmission, Markets and Services Tariff (ISO-NE Tariff), Schedule 22 (for Generators larger than 20 MW) or Schedule 23 (for Generating Facilities up to and including 20 MW). ISO-NE will administer the interconnection process. However, prior to submitting an application to ISO-NE, Generators must contact the EDC's Facilitator. In addition, prior to or at the same time that the Generator submits the application to ISO-NE, the Generator should provide a copy of the Interconnection application to the EDC. The EDC will establish the Generator's queue position upon the EDC's receipt of notification from the ISO-NE.

### **State Jurisdictional Interconnections:**

The state-jurisdictional Interconnection process begins when a Generator submits an application to the EDC. The EDC will review the application and submittals and work

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with the customer to resolve any discrepancy and obtain any missing information. The EDC will then conclude the application review within fifteen (15) Business Days and submit the results to the Generator.

Upon completion of the application review, if an Interconnection Study (Feasibility, Impact and/or Facility) is required, the EDC will provide a Study Agreement and an estimate of the costs to complete the Study. The EDC will request that the Generator execute the Agreement within fifteen (15) Business Days and pay the estimated cost of the Study. Some or all of the Studies may be required and the EDC will work with the Generator to identify the required Studies. Each Study will require its own Study Agreement. Distribution Studies usually require approximately thirty (30) Business Days for completion of each Study and may include a Feasibility Study, an Impact Study and a Facility Study.

Transmission studies may be required for some Interconnections even if the Generator Interconnection falls under state rules. Transmission studies are more complex and must be conducted in accordance with applicable ISO-NE rules and procedures. These Guidelines do not address the transmission studies process required by ISO-NE. The Generator may obtain guidance from the ISO-NE Tariff, Schedule 22 and 23 and Section I.3.9. However, during the Interconnection process, the EDC will provide guidance including information concerning the scope, duration and cost of the transmission studies.

At the conclusion of the studies, the EDC will submit an Interconnection Agreement (IA) to the Generator. The Generator will be required to sign the IA and submit full payment for the estimated costs for upgrades required to interconnect the Generating Facility. At the conclusion of the project, the EDC will reconcile actual vs. estimated cost and reimburse or bill the Generator accordingly.

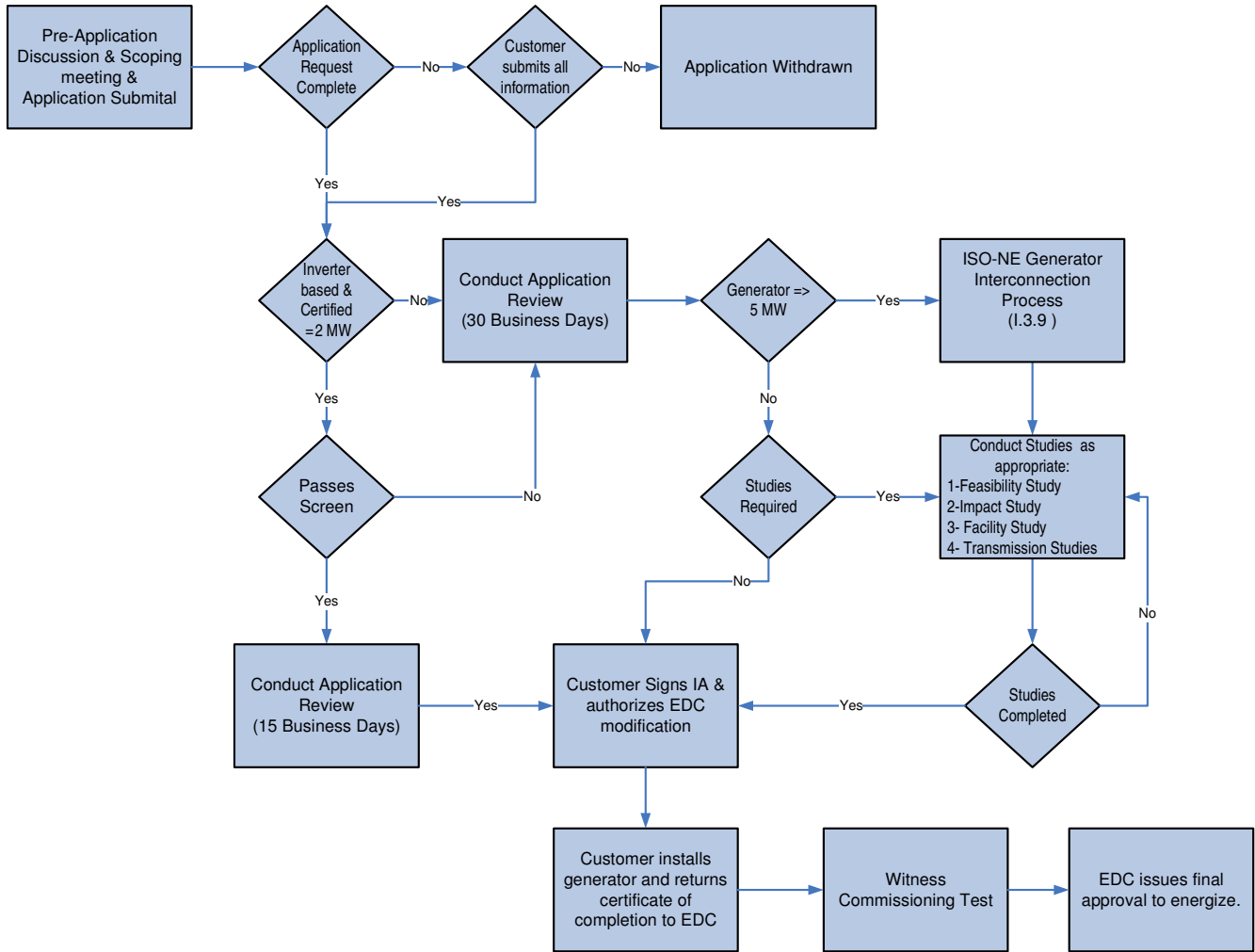
Once the upgrades are implemented, the following steps will be required to allow the Generator to interconnect to the EDC.

- Provide Proof of Municipal approval for the Generating Facility.
- Request the EDC to witness the commissioning test. Within ten (10) Business Days of the receipt of the Municipal approval, the EDC will witness the commissioning test and following successful completion of that test, the EDC will send a final approval authorizing the interconnection to the Generator.

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The following Interconnection Process Flow Chart provides an overview of the steps necessary for a successful interconnection:

**Figure 1: Interconnection Process Flow Chart**



**Additional Process Steps for Generators greater than 5 MW:**

Regardless of the Interconnection jurisdiction, each Generator wishing to interconnect a Generating Facility larger than 5 MW must comply with the ISO-NE Planning Procedure 5 (PP5), which is the procedure for a Proposed Plan Application (PPA) under Section I.3.9 of the ISO-NE Tariff. This process must be completed before the Generator may Interconnect such Generating Facility. It is important to note that the PPA process is an ISO-NE requirement, even if the Interconnection of such facility falls under state jurisdiction.

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While the Generator is ultimately responsible for the PPA application and the associated data to be submitted to ISO-NE, the EDC will provide support to the Generator if the Generator is not a “Governance Participant” (as such term is defined in the Participants Agreement; among ISO-NE and the New England Power Pool) at the time the PPA is submitted to the EDC. Typically, the EDC will file the PPA on behalf of such non-Governance Participant Generator.

Additionally, the EDC will represent such Generator in ISO-NE proceedings in accordance with the current ISO-NE rules; provided, however, that such Generator shall remain solely responsible for, among other things:

- (a) the completion of the PPA and the accuracy of the information contained therein,
- (b) the advance payment based on a non-binding good faith estimate of all costs in connection with any required Transmission System Impact Study, and
- (c) the payment of all costs associated with transmission upgrades identified through the ISO-NE approval process.

Each non-Governance Participant Generator wishing to Interconnect a Generating Facility larger than 5 MW must read and be familiar with PP5, Section I.3.9 of the ISO-NE Tariff and other relevant ISO-NE guidance on the PPA process. Further, such non-Governance Participant Generator can communicate directly with ISO-NE to seek assistance concerning the applicable PPA requirements and associated issues.

For non-Governance Participant Generators the EDC notifies ISO-NE of receipt of the Interconnection Application, under current ISO-NE practice. Further, the EDC submits a complete copy of the PPA application to ISO-NE in order to secure an ISO-NE queue position. An ISO-NE queue position will not be established by ISO-NE until all the data required by ISO-NE is complete.

Governance Participants are responsible for filing their own PPA with the ISO-NE and representing themselves in connection with all ISO-NE proceedings.

### **Interconnection Process for Generators greater than 20 MW:**

The time frames and processes described in these guidelines are applicable to Generating Facilities smaller than 20 MW and represent the majority of Distribution interconnections. Generating Facilities larger than 20 MW are only rarely interconnect to the EPS. However, from time to time the EDC will receive requests for Interconnecting Generating Facilities greater than 20 MW seeking an interconnection to the EPS. When this situation occurs and provided that an interconnection to the EPS is feasible and appropriate, the EDC will use these Guidelines; however, the time frames to conduct the Application Review and Studies will be adjusted in accordance with the ISO-NE Tariff, Schedule 22.

## SECTION 2

### 2.0 Pre Application

- 2.1. After presenting a proposed Interconnection project for a specific site, the Generator may request information regarding the application process from an EDC Facilitator. The most current contact information for EDC Facilitators is available on each EDC's website listed below.
- 2.2 The EDC Facilitator will serve as the primary point of contact for all Interconnections. Copies of these Guidelines, information and forms can be obtained from the EDC Facilitator .
- 2.3 The EDC Facilitator for CL&P can be contacted:

*by phone:* 1-866-324-2437; or

*by mail or courier:*

The Connecticut Light & Power Company  
Distributed Resources Group  
P.O. Box 1409  
Hartford, CT 06143-1409

Updated information regarding EDC Facilitator contact information can be found at <http://www.cl-p.com/companyinfo/interconnection/interconnections.asp>.

- 2.4 The EDC Facilitator for UI can be contacted:

*via email:* [generator.connection@uinet.com](mailto:generator.connection@uinet.com)

*by phone:* 1-800-557-6602; or

*by mail or courier:*

The United Illuminating Company  
Customer Operations  
Generator Interconnection  
801 Bridgeport Ave.  
Shelton, CT 06484

Updated information regarding EDC Facilitator contact information can be found at <http://www.uinet.com>

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### 3.0 Application

#### 3.1 Applicability

- 3.1.1 These Guidelines are applicable to Interconnection Requests for Generating Facilities which fall under DPUC jurisdiction. Generators unsure as to whether the proposed Interconnection is subject to these Guidelines should contact the appropriate EDC Facilitator.
- 3.1.2 Requests for Interconnection received by an EDC shall be processed as follows:
- 3.1.2.1 A request to interconnect a certified inverter-based Generating Facility no larger than 10 kW shall be evaluated under the “Guidelines for Certified Inverter Based Generating Facilities, 10 kW and Less.”
- 3.1.2.2 A request to interconnect a Generating Facility no larger than 2 MW shall be evaluated under either the Fast Track Process (Section 4) or the Study Process (Section 5). A description of certification criteria is set forth in Attachment I.
- 3.1.2.3 A request to interconnect a Generating Facility larger than 2 MW or a Generating Facility that does not meet the criteria for the Fast Track Process shall be evaluated under the Study Process (Section 5).

#### 3.2 Interconnection Request

- 3.2.1 Prior to making an Interconnection Request, Generators should contact the EDC Facilitator to determine where to apply. If an Interconnection Request is sent to an EDC in error (*e.g.*, ISO-NE jurisdiction or wrong EDC) the EDC will return such Interconnection Request to the Generator.
- 3.2.2 An Interconnection Request must be in the form of Attachment I, and addressed to the appropriate EDC Facilitator. A processing fee is required with each Interconnection Request. The applicable fee is as follows:

Process	Generator Applicability	Application Fee	Each Study Fee
Fast Track	0-2 MW, unless Generating Facility does not qualify for the Fast Track process	\$500	Actual Cost Based

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Study	(1) is larger than 2 MW but no larger than 20 MW, (2) is 2 MW or less and is not certified, or (3) is 2 MW or less and is certified but did not pass the Fast Track Process or the 10 kW Inverter Process.	\$1000	Actual Cost Based
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- 3.2.3 The Interconnecting EDC shall date- and time-stamp the Interconnection Request upon receipt. Such date- and time-stamp shall used for the purposes of the timetables set forth in these Guidelines.
- 3.2.4 Within three (3) Business Days of the receipt of the Interconnection Request, the Interconnecting EDC shall confirm receipt of such Interconnection Request using the form attached hereto as Attachment II.
- 3.2.5 Within ten (10) Business Days of the receipt of the Interconnection Request, the Interconnecting EDC shall notify the Generator if such Interconnection Request is incomplete using the form attached hereto as Attachment III. The Generator will have fifteen (15) Business Days from the date of such notice to submit the listed information or to request an extension of time to provide such information. If the Generator does not provide the listed information or a request for an extension of time within such fifteen (15) day period, then the Interconnection Request will be deemed withdrawn, and such deemed withdrawal shall be subject to Section 3.8. An Interconnection Request will be deemed complete upon receipt of the listed information by the Interconnecting EDC.

### 3.3 Insurance Requirements

Generators interconnecting a Generating Facility to the EPS of an EDC shall maintain general liability insurance in the amounts set forth in the following table, per Interconnection at all times during the Interconnection.

<b>Liability Insurance</b>	
<b>Nameplate Rating*</b>	<b>Minimum Liability Insurance Required</b>
Less than 100 kW	\$300,000
Greater than 100 kW to 1 MW	\$1,000,000
Greater than 1 MW to 5 MW	\$2,000,000
Greater than 5 MW	\$5,000,000

\*All Nameplate Ratings are based on aggregate generation at the site.

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### 3.3.1 General Liability:

In connection with Generator's performance of its duties and obligations under the Interconnection Agreement, Generator shall maintain, at all times during the Interconnection, general liability insurance with a combined single limit of not less than:

Three hundred thousand dollars (\$300,000) per occurrence and in the aggregate for bodily injury and/or property damage claims where the Gross Nameplate Rating of the Generators Facility is less than or equal to 100 kW.

One million dollars (\$1,000,000) per occurrence and in the aggregate for bodily injury and/or property damage claims where the gross nameplate rating of the Generators Facility is greater than 100 kW and less than or equal to 1 MW.

Two million dollars (\$2,000,000) per occurrence and in the aggregate for bodily injury and/or property damage claims where the gross nameplate rating of the Generators Facility is greater than 1 MW and less than or equal to 5 MW.

Five million dollars (\$5,000,000) per occurrence and in the aggregate for bodily injury and/or property damage claims where the gross nameplate rating of the Generators Facility is greater than 5 MW and less than or equal to 20 MW.

### 3.3.2 Insurer Requirements and Endorsements

All required insurance shall be carried by reputable insurers qualified to underwrite insurance in Connecticut. In addition, all insurance shall: (a) include the EDC as an additional insured for all Generating facilities greater than 1 MW; (b) contain a severability of interest clause or cross-liability clause; (c) provide that the EDC shall not incur liability to the insurance carrier for payment of premium for such insurance; and (c) provide for thirty (30) Calendar Days' written notice to the EDC prior to cancellation, termination, or material change of such insurance.

### 3.3.3 Evidence of Insurance

Evidence of the insurance required shall state that coverage provided is primary, and is not in excess of or contributing with any insurance or self-insurance maintained by the EDC.

The Generator is responsible for providing the EDC with evidence of insurance in compliance with this Guideline on an annual basis.

Prior to the EDC commencing work on system modifications, the Generator shall have its insurer furnish to the EDC certificates of insurance evidencing the insurance coverage required above. The Generator shall notify and send to the EDC a certificate of insurance for any policy written on a "claims-made" basis. The EDC may at its discretion require the Generator to maintain tail coverage for three years on all policies written on a "claims-made" basis.

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All insurance certificates, statements of self insurance, endorsements, cancellations, terminations, alterations, and material changes of such insurance shall be issued and submitted to the appropriate EDC Facilitator.

### 3.4 Infrastructure Security

The security of the electric system infrastructure is essential. FERC requires the EDCs, market participants, and Generating Facilities interconnected with an EDC's EPS to comply with the recommendations offered by the National Infrastructure Advisory Council and best practice recommendations from NERC. All public utilities must meet basic standards for electric system infrastructure and operational security, including physical, operational, and cyber-security practices where required. Interconnection Requests will be reviewed in light of infrastructure security concerns.

### 3.5 Modification

Any modification to machine data, equipment configuration or the Interconnection site not agreed to in writing by the Interconnecting EDC may be deemed a withdrawal of the Interconnection Request. In the event of a deemed withdrawal, the provisions of Section 3.8 shall apply.

### 3.6 Site Control

Documentation evidencing site control must be submitted with the Interconnection Request. Site control may be demonstrated through:

- 3.6.1 Ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the Generating Facility;
- 3.6.2 An irrevocable option to acquire any of the property rights set forth in Section 3.6.1; or
- 3.6.3 An exclusivity or other business relationship between the Generator and an entity having the right to sell, lease, or grant the Generator the right to possess or occupy a site for such purpose; or
- 3.6.4 Filed applications for required permits with respect to a site on Federal or State property.

### 3.7 Queue Position

3.7.1 The Interconnecting EDC shall assign to each Interconnection Request a queue position based upon date of the date-stamp described in Section 3.2.3. The queue position of each Interconnection Request will be used to determine the cost responsibility for any upgrades necessary to accommodate the Interconnection. The EDC shall maintain a single Distribution queue.

### 3.8 Withdrawal

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- 3.8.1 The Generator may withdraw its Interconnection Request at any time by written notice of such withdrawal to the Interconnecting EDC.
- 3.8.2 In addition, if the Generator fails to adhere to all requirements of these Guidelines, subject to Section 3.8.3, the Interconnecting EDC shall deem the Interconnection Request to be withdrawn and shall provide written notice to the Generator of the deemed withdrawal and an explanation of the reasons for such deemed withdrawal.
- 3.8.3 Upon receipt of such written notice, if the Generator wishes to dispute the withdrawal notice, the Generator shall have fifteen (15) Business Days in which to either respond with information or actions that cure the deficiency or to notify the Interconnecting EDC of its intent to pursue dispute resolution in accordance with Section 6.2.
- 3.8.4 Withdrawal of an Interconnection Request shall result in the loss of queue position assigned to such Interconnection Request.
- 3.8.5 If a Generator disputes such withdrawal and loss of queue position, then the Generator's Interconnection Request shall be removed from the queue until such time that the outcome of the dispute restores its queue position.
- 3.8.6 Within thirty (30) days following a withdrawal, a Generator that withdraws or is deemed to have withdrawn its Interconnection Request shall pay to the Interconnecting EDC and any Affected Parties all costs prudently incurred with respect to such Interconnection Request prior to the receipt of notices described Section 3.8.1 or 3.8.2, as the case may be.
- 3.8.7 A Generator who fails to pay all monies due pursuant to Section 3.8.6 shall not be eligible to obtain any Interconnection Study reports or submit subsequent Interconnection Requests.

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### 4.0 Fast Track Process

#### 4.1 Applicability

The Fast Track Process is available to any Generator proposing to interconnect its Generating Facility with the Distribution System if (a) the proposed Generating Facility is no larger than 2 MW and (b) the proposed Generating Facility (i) meets the Codes and Standards and other certification requirements of these Guidelines or (ii) is determined to be safe to operate by the Interconnecting EDC, in its sole discretion.

#### 4.2 Initial Review

Within fifteen (15) Business Days after the Interconnecting EDC notifies the Generator it has received a complete Interconnection Request, the Interconnecting EDC shall perform an initial review using the screens set forth below, shall notify the Generator of the results, and include with the notification copies of the analysis and data underlying the determinations under the screens.

4.2.1 The EDC will use the following criteria for performing screening evaluations:

4.2.1.1 For Interconnection of a proposed Generating Facility to a radial distribution circuit, the aggregated generation, including the proposed Generating Facility, on the circuit shall not exceed fifteen percent (15%) of the Line Section annual peak load as most recently measured at the substation. A line section is that portion of an Interconnecting EDC's electric system connected to a customer bounded by automatic sectionalizing devices or the end of the distribution line.

4.2.1.2 For Interconnection of a proposed Generating Facility to the load side of Spot Network protectors, the proposed Generating Facility must utilize an inverter-based equipment package and, together with the aggregated other inverter-based generation, shall not exceed the lesser of five percent (5%) of a Spot Network's maximum load or 50 kW.

4.2.1.3 The proposed Generating Facility, in aggregation with other generation on the distribution circuit, shall not contribute more than ten percent (10%) to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed point of change of ownership.

4.2.1.4 The proposed Generating Facility, in aggregation with other generation on the distribution circuit, shall not cause any distribution protective devices and

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equipment (including, but not limited to, substation breakers, fuse cutouts, load-break elbows, and line reclosers), or Generating Facility equipment on the EPS to exceed eighty-seven and one-half percent (87.5%) of the short circuit interrupting capability; nor shall the Interconnection be permitted for a circuit that already exceeds eighty-seven and one-half percent (87.5%) of the short circuit interrupting capability.

4.2.1.5 The table below sets forth the type of Interconnection applicable to each type of primary distribution line. This screen criterion includes a review of the type of electrical service provided to the Generator, including line configuration and the transformer connection to limit the potential for creating over-voltages on the Interconnecting EDC's EPS due to a loss of ground during the operating time of any anti-islanding function.

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

4.2.1.6 If the proposed Generating Facility is to be interconnected on single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed Generating Facility, shall not exceed 20 kW.

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

4.2.1.8 The Generating Facility (in aggregation with other generation interconnected to the side of a substation transformer feeding the circuit where the Generating Facility is proposed to be interconnected) shall not exceed 10 MW in an area where there are known, or posted, transient stability limitations to generating units located in the general electrical vicinity (*e.g.*, three or four busses from the Point of Interconnection).

4.2.1.9 No construction of facilities by the Interconnecting EDC on its EPS shall be required to accommodate the Generating Facility.

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- 4.2.2 If the Interconnecting EDC determines that the proposed Interconnection passes the screen criteria set forth in Section 4.2.1, the Interconnection Request shall be approved and the Interconnecting EDC will provide the Generator an executable Interconnection Agreement within five (5) Business Days after such determination.
- 4.2.3 If the proposed Interconnection fails the screens, but the Interconnecting EDC determines that the Generating Facility may nevertheless be interconnected consistent with safety, reliability, and power quality standards, the Interconnecting EDC shall provide the Generator an executable Interconnection Agreement within five (5) Business Days after such determination.
- 4.2.4 If the proposed Interconnection fails the screens, but the Interconnecting EDC is unable to determine from the initial review that the Generating Facility may nevertheless be interconnected consistent with safety, reliability, and power quality standards (unless the Generator is willing to consider minor modifications or further study), the Interconnecting EDC shall provide the Generator with the opportunity to attend a customer options meeting described in Section 4.3.

### 4.3 Customer Options Meeting

If the Interconnecting EDC determines that the Interconnection Request cannot be approved without (a) minor modifications at minimal cost, (b) a supplemental study or other additional studies or actions, or (c) modifications at significant cost to address safety, reliability, or power quality problems, then the EDC shall notify the Generator and provide copies of all analyses underlying its conclusion within the five (5) Business Day period after such determination.

Within ten (10) Business Days of such determination, the Interconnecting EDC shall offer to convene a customer options meeting with the Generator to review possible Generating Facility modifications or the screen analysis and related results in order 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 determination, or at the customer options meeting:

- 4.3.1 The Interconnecting EDC shall offer to perform, at the Generator's expense, modifications to the EDC's Interconnection Facilities or minor modifications to the Interconnecting EDC's EPS (*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 Interconnecting EDC's EPS;
- 4.3.2 The Interconnecting EDC shall offer to perform, at the Generator's expense, a supplemental review in accordance with Section 4.4 if the EDC concludes in its sole discretion that the supplemental review might reasonably determine that the

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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 of such supplemental review; or

- 4.3.3 The Interconnecting EDC and the Generator shall agree to continue evaluating the Interconnection Request under Section 5 (Study Process).

### 4.4 Supplemental Review

In order to accept the Interconnecting EDC's offer to conduct a supplemental review, the Generator must accept such offer in writing within fifteen (15) Business Days of such offer, and submit a payment to the Interconnecting EDC for the estimated costs set forth in such offer. The Generator shall be responsible for the Interconnecting EDC's actual costs of conducting the supplemental review. The Generator must pay any review costs that exceed the estimated cost payment within twenty (20) Business Days of the later of (a) receipt of an invoice from the Interconnecting EDC or (b) resolution of any dispute concerning such invoice. If the estimated cost payment exceeds the actual costs, the Interconnecting EDC will refund such excess without interest within twenty (20) Business Days of the calculation of the actual costs.

- 4.4.1 Within ten (10) Business Days following receipt of the payment for a supplemental review, the Interconnecting EDC shall conduct a supplemental review to determine whether the Generating Facility can be interconnected safely and reliably.
- 4.4.1.1 If so, and no modifications to the Generating Facility are required by the Interconnecting EDC, the Interconnecting EDC shall forward an Interconnection Agreement to the Generator for execution within five (5) Business Days of such determination.
- 4.4.1.2 If so, and modifications to the Generating Facility are required by the Interconnecting EDC, the Interconnecting EDC will provide a written summary of estimated costs of such modifications, and the Generator shall provide written notice to the Interconnecting EDC of whether the Generator agrees to make the required Generating Facility modifications at the Generator's cost within thirty (30) Business Days of receiving such written summary from the Interconnecting EDC. Within five (5) Business Days after confirmation that the Generator has agreed in writing to make the required changes at the Generator's cost, the Interconnecting EDC shall forward an Interconnection Agreement (Exhibit A) to the Generator for execution.
- 4.4.1.3 If so, and minor modifications to the Interconnecting EDC's EPS are required by the Interconnecting EDC, the Generator shall pay the costs of such EPS modifications prior to Interconnection. The Interconnecting EDC

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shall forward an executable Interconnection Agreement to the Generator within ten (10) Business Days of such a determination.

- 4.4.1.4 If not, the Interconnection Request shall be evaluated under Section 5 (Study Process). Technical Requirements for certified inverter-based Generating Facilities are provided in the Exhibit B.

## SECTION 5

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### 5.0 Study Process

#### 5.1 Applicability

The Study Process shall be used by a Generator proposing to interconnect its Generating Facility with the Distribution System if the Generating Facility (a) is larger than 2 MW, (b) is 2 MW or less and is not certified, or (c) is 2 MW or less and is certified but did not pass the Fast Track Process or the 10 kW Inverter Process.

#### 5.2 Scoping Meeting

- 5.2.1 Unless the Parties mutually agree to forgo the Scoping Meeting pursuant to Section 5.2.3, a Scoping Meeting shall be held within ten (10) Business Days after the Interconnection Request is deemed complete, or as otherwise mutually agreed to by the Parties. The Interconnecting EDC, the Generator and the Affected Party(ies) will bring to the meeting personnel, including system engineers, and other resources as may be reasonably necessary in order to accomplish the purpose of the meeting.
- 5.2.2 The purpose of the Scoping Meeting is to discuss the Interconnection Request, review the appropriate jurisdiction for application submittal, and review whether the proposed project will require a corresponding ISO-NE System Impact Study to be performed and also to review existing studies relevant to the Interconnection Request. At the Scoping Meeting, the Parties shall further discuss whether the Interconnecting EDC should perform a Feasibility Study or proceed directly to either or both of the System Impact Studies, a Facility Study, or an Interconnection Agreement. If the Parties agree that a Feasibility Study should be performed, the Interconnecting EDC shall provide the Generator, as soon as practicable, but not later than five (5) Business Days after the Scoping Meeting, a Feasibility Study Agreement in the form of Attachment IV, including an outline of the scope of the Feasibility Study and a non-binding good faith estimate of the cost to perform the Feasibility Study.
- 5.2.3 The Parties may mutually agree to forgo the Scoping Meeting if (a) the Generator requests a Feasibility Study or (b) the Interconnecting EDC determines that a Feasibility Study is not required and the Parties agree to proceed to either or both of the System Impact Studies.
- 5.2.3.1 A Generator who has requested a Feasibility Study must return the executed Feasibility Study Agreement within fifteen (15) Business Days after the Generator's Interconnection Request is deemed complete.

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5.2.3.2 If the Interconnecting EDC determines that a Feasibility Study is not required and the Parties agree to proceed to either or both System Impact Studies, then the Interconnecting EDC shall provide the Generator, no later than five (5) Business Days after the scoping meeting, the appropriate System Impact Study agreement(s) including an outline of the scope of such System Impact Study and a non-binding good faith estimate of the cost to perform such System Impact Study. The form of Distribution System Impact Study Agreement is attached hereto as Attachment V. Transmission System Impact Study process and documents can be found on the ISO-NE website. ([www.iso-newengland.com](http://www.iso-newengland.com)).

### 5.3 Feasibility Study

- 5.3.1 The Feasibility Study shall identify any potential adverse system impacts that would result from the Interconnection of the Generating Facility.
- 5.3.2 The Generator must pay the good faith cost estimate set forth in the Feasibility Study Agreement prior to the Interconnecting EDC's initiation of the Feasibility Study. The scope of and cost responsibilities for the Feasibility Study are more fully described in the Feasibility Study Agreement (Attachment V).
- 5.3.3 If the Feasibility Study shows no potential for adverse system impacts, the EDC shall send the Generator a Facility Study Agreement in the form of Attachment VI, including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study. If the Feasibility Study shows that no additional facilities are necessary, an Interconnection Agreement shall be tendered to the Generator for execution within five (5) Business Days after the completion of the Feasibility Study.
- 5.3.4 If the Feasibility Study shows the potential for adverse system impacts, the review process shall proceed to the System Impact Study(ies).
- 5.3.5 In the case where either the Feasibility Study or the System Impact Study(ies) are determined to be unnecessary, the Interconnecting EDC shall notify the Generator within five (5) Business Days that such study(ies) are not required.

### 5.4 System Impact Studies

- 5.4.1 The System Impact Studies shall (a) identify and detail the EPS 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, and/or (b) study potential impacts, including but not limited to those identified in the Scoping Meeting.

## SECTION 5

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- 5.4.2 If potential adverse distribution system impacts are identified at the Scoping Meeting or in the Feasibility Study, then a Distribution System Impact Study shall be required. If a Distribution System Impact Study is required, then the Interconnecting EDC shall send the Generator a Distribution System Impact Study Agreement within fifteen (15) Business Days of (a) transmittal of the results of the Feasibility Study (if performed) or (b) the Scoping Meeting (if no Feasibility Study is performed), including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study.
- 5.4.3 If potential adverse transmission system impacts are identified, the Interconnecting EDC shall send the Generator a Transmission System Impact Study Agreement within five (5) Business Days following transmittal of the Study results of the Feasibility Study or the Distribution System Impact Study, as the case may be, including an outline of the scope of the Transmission System Impact Study and a non-binding good faith estimate of the cost to perform the Transmission System Impact Study.
- 5.4.4 If a Transmission System Impact Study is not required, but EPS adverse system impacts are shown by the Feasibility Study to be possible and no Distribution System Impact Study has been conducted, the EDC shall send the Generator a Distribution System Impact Study Agreement.
- 5.4.5 If the System Impact Study(ies) shows no potential for adverse impacts to the transmission system or the distribution system, then the EDC shall send to the Generator for execution either (a) a Facility Study Agreement, including an outline of the scope of the study and a non-binding good faith estimate of the cost to perform the study, or (b) an Interconnection Agreement, as applicable.
- 5.4.6 In order to remain under consideration for Interconnection and in the Interconnecting EDC's Interconnection queue, the Generator must return executed System Impact Study Agreements, if applicable, within thirty (30) Business Days of receipt of same from the Interconnecting EDC.
- 5.4.7 A payment of the good faith estimated System Impact Study costs shall be required in full from the Generator prior to initiation of the System Impact Studies.
- 5.4.8 The scope of and cost responsibilities for a System Impact Studies are set forth in the applicable System Impact Study agreement.
- 5.4.9 Any Affected Parties shall be invited to participate in the System Impact Studies and provide information necessary or helpful to complete the System Impact Studies.

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### 5.5 Facility Study

- 5.5.1 Once the required System Impact Studies, if any, are completed, the Interconnecting EDC shall prepare a System Impact Studies report and provide a copy of such report to the Generator along with a Facility Study Agreement within five (5) Business Days of completion of the System Impact Studies, including an outline of the scope of the Facility Study and a non-binding good faith estimate of the cost to perform the Facility Study.
- 5.5.2 Within five (5) Business Days following receipt of the report described in Section 5.5.1, the Generator shall notify the Interconnecting EDC in writing as to whether it will either pursue the Facility Study or waive the Facility Study and elect an expedited Interconnection.
- 5.5.2.1 If the Generator waives the Facility Study, it shall commit to the following milestones in the Interconnection Agreement: (a) siting approval by the appropriate regulatory authorities for the Generating Facility and Interconnection Facilities; (b) engineering of Interconnection Facilities shall be subject to prior approval by the Interconnecting EDC; (c) the ordering of long lead time material by the EDC for Interconnection Facilities and system upgrades; (iv) an In-Service Date; and (v) Commercial Operation Date.
- 5.5.2.2 If the Generator does not waive the Facility Study, in order to remain under consideration for Interconnection and in the EDC's Interconnection queue, then the Generator must return the executed Facility Study Agreement or a request for an extension of time within thirty (30) Business Days following receipt of the Facility Study from the Interconnecting EDC. Any such extension shall not exceed sixty (60) Business Days.
- 5.5.3 The Facility Study shall specify and estimate the cost of the equipment, engineering, procurement and construction work (including overheads) needed to implement the conclusions of the System Impact Studies.
- 5.5.4 Design for any required Interconnection Facilities and/or Generating Facility upgrades shall be provided for under the Facility Study Agreement. The Interconnecting EDC may contract with outside consultants to provide such design(s). The Generator, the Interconnecting EDC and any Affected Party(ies), may agree to allow the Generator to separately arrange for such design(s). In such cases, facilities design shall be subject to review and prior by the Interconnecting EDC, in accordance with the Facility Study Agreement. If the Parties agree to separately arrange for design and construction, and provided security and confidentiality requirements can be met, the Interconnecting EDC shall make sufficient information available to the Generator in accordance with confidentiality

## SECTION 5

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and critical infrastructure requirements to permit the Generator to obtain an independent design and cost estimate for any necessary facilities.

- 5.5.5 A payment of the good faith estimated Facility Study costs shall be required in full from the Generator prior to execution of the Facility Study.
- 5.5.6 The scope of and cost responsibilities for the Facility Study are described in the attached Facility Study Agreement.
- 5.5.7 Within thirty (30) Business Days of receipt of the Facility Study results, the Generator shall provide written notice whether it agrees to pay for the Interconnection Facilities and upgrades identified in the Facility Study. An executable Interconnection Agreement shall be tendered by the Interconnecting EDC to the Generator within five (5) Business Days of receipt of such written notice.

## SECTION 6

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### **6.0 Provisions That Apply to All Interconnections and Associated Applications**

#### **6.1 Reasonable Efforts**

The Interconnecting EDC shall make reasonable efforts to meet all time frames provided in these Guidelines; provided, however, that the Interconnecting EDC and the Generator may agree to different time frames. If the Interconnecting EDC fails to meet a deadline provided herein, it shall (a) notify the Generator, (b) explain the reason for the failure to meet the deadline, and (c) provide an estimated date by which it will complete the applicable Interconnection procedure in the process.

#### **6.2 Dispute Resolution**

6.2.1 Each Party shall attempt to informally resolve all disputes arising in connection with these Guidelines promptly, equitably and in good faith. If the Parties are unable to informally resolve their dispute, the following formal three step dispute resolution process must be followed:

##### 6.2.1.1 Negotiation:

Upon receipt of written request for formal dispute resolution, the Parties shall negotiate in good faith for up to eight (8) Business Days in an attempt to resolve such dispute. Such negotiation will take place between each Party's vice-president or other member of senior management with sufficient authority to resolve such dispute.

##### 6.2.1.2 Mediation:

If the Parties are unable to resolve such dispute through the negotiation process set forth in Section 6.2.1.1, the Parties shall attempt to resolve such dispute through non-binding mediation. Each Party shall select a mediator within five (5) Business Days and the two selected mediators will attempt to, within five (5) Business Days, select a third, mutually agreeable, mediator. After the mediators are selected, the Parties shall engage in mediation in good faith for a period of not less than thirty (30) days following commencement of such mediation. The Parties shall share the cost of mediation equally; provided, however, that each Party shall be responsible for its own legal fees incurred in connection with such mediation.

##### 6.2.1.3 DPUC Dispute Resolution:

If the Parties cannot resolve their dispute through the mediation process set

## SECTION 6

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forth in Section 6.2.1.2, then either Party may commence an action at the DPUC seeking resolution of such dispute.

6.2.2 The dispute resolution processes and time frames set forth in Section 6.2.1 may be modified by mutual written agreement of the Parties.

### 6.3 Interconnection Metering

Any metering necessitated by the use of the Generating Facility shall be installed at the Generator's expense in accordance with Applicable Reliability Standards then in effect.

### 6.4 Commissioning

Commissioning tests of the Generator's installed equipment shall be performed pursuant to applicable Codes and Standards, and equipment manufacturers' recommendations. The Generator shall provide a certified commissioning test procedure to the Interconnecting EDC for approval.

The list below is a list of tests commonly required by IEEE 1547 and is not intended to be a list of additional testing requirements:

- Current Transformer (CT) and CT circuit polarity, ratio, insulation, excitation, continuity and burden tests,
- Voltage Transformer (VT) and VT circuit polarity, ratio, insulation and continuity tests,
- Relay pick-up and time delay tests,
- Functional breaker trip tests from protective relays,
- Relay in-service test to check for proper phase rotation and magnitudes of applied currents and voltages,
- Breaker closing interlock tests, and
- Paralleling and disconnection operation.
- Anti-islanding function, if applicable.
- Non-export function, if applicable.
- Synchronizing Controls, if applicable.
- Proof of inability to energize dead lines.

6.4.2 The Interconnecting EDC must be given at least ten (10) Business Days written notice, or as otherwise mutually agreed to by the Parties, of the tests and may be present to witness the commissioning tests. The Interconnecting EDC will not assist in performance of, or provide equipment for the commissioning test.

6.4.3 The Interconnecting EDC will provide a Contingent Approval to the Generator, akin to the form in Attachment VII, when all EDC application review elements have

## SECTION 6

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been satisfied. When the Commissioning Test has been successfully completed the Interconnecting EDC will provide an “Approval to Energize Form” to the Generator, substantially in the form of Attachment VIII.

### 6.5 Periodic Interconnection Tests

At the time of scheduling of a commissioning test, the Generator shall provide a written periodic Interconnection test procedure to the Interconnecting EDC. (Such procedures are typically provided by the equipment manufacturer.) The procedure shall describe a test process that will verify all Interconnection-related protective functions and associated batteries are functional, but need not replicate the commissioning test procedures. The interval between periodic tests shall be specified by the manufacturer, system integrator, or the authority having jurisdiction over the Interconnection. Written test reports or a log for inspection shall be maintained by the Generator.

The Interconnecting EDC may audit the Generator’s written test reports, logs and other materials regarding the Interconnection or the Generating Facility at its discretion. If the functional software or firmware of the Interconnection system has been modified or if any hardware component of the Interconnection system has been modified, replaced or repaired with parts different from the tested configuration, and if such hardware, software or firmware have not been previously approved, then the applicable commissioning tests shall be performed by an independent testing facility. If such hardware, software or firmware has been previously approved or if settings have been changed, then only the commissioning tests applicable to the changes made shall be conducted. This requirement is in accordance with IEEE 1547.2.

### 6.6 Confidentiality

The Interconnecting EDC shall maintain confidentiality of all information of by the Generator clearly designated as “Confidential” except as otherwise required by system operators, applicable laws and regulations. In the event that the Interconnecting EDC is requested to produce such confidential information, the Interconnecting EDC shall provide advance notice to Generator, if possible, to give Generator an opportunity to seek protective treatment of such information. If such information is requested or required by the DPUC, the Interconnecting EDC will seek protective treatment of such confidential information. Confidential information does not include information that is: (a) in or becomes part of the public domain; (b) known to the Interconnecting EDC previously; (c) independently developed by the Interconnecting EDC; (d) rightfully obtained by the Interconnecting EDC from third parties without a duty of confidentiality; or (e) required to be publicly disclosed by law, statute or regulation.

### 6.7 Record Retention

## SECTION 6

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The Interconnecting EDC shall, at a minimum, maintain for three (3) years, subject to audit, records of all Interconnection Requests received under these procedures, the times required to complete Interconnection Request approvals and disapprovals, and justification for the actions taken on the Interconnection Requests.

### **6.8 Interconnection Agreement**

The Generator and the Interconnecting EDC shall be Parties to the Interconnection Agreement. The Interconnecting EDC shall provide an Interconnection Agreement to the Generator in accordance with these Guidelines. After the Interconnecting EDC provides an Interconnection Agreement to the Generator for execution, the Generator shall have thirty (30) Business Days or another mutually agreeable timeframe to sign and return the Interconnection Agreement. After the Interconnection Agreement is fully executed, the Interconnection of the Generating Facility shall proceed under the provisions of the Interconnection Agreement and these Guidelines.

### **6.9 Performance Assurance**

Performance Assurance will only be required in rare cases where abnormally high ongoing maintenance cost are anticipated to support the Interconnection or in unusual cases where there is a potential for wide variation between the actual and estimated costs for the Interconnection.

If performance assurance is required for an Interconnection, the EDC will provide a written explanation of the reasons therefor to the Generator.

### **6.10 Coordination with Affected Systems**

If the Interconnecting EDC determines that any Interconnection Request may have an impact on other Affected Systems, the Interconnecting EDC will include representatives of such Affected Systems in all meetings and proceedings pertinent to such impact.

### **6.11 Generating Facility Capacity**

The Generating Facility Capacity, for the purpose of analysis, shall be determined as follows:

6.11.1 If the Interconnection Request is for an increase in capacity for an existing Generating Facility, the Interconnection Request shall be evaluated on the basis of the new total capacity of the Generating Facility.

6.11.2 If the Interconnection Request is for a Generating Facility that includes multiple energy production devices at a site for which the Generator seeks a single Point of Interconnection, the Interconnection Request shall be evaluated on the basis of the aggregate capacity of such multiple devices.

## SECTION 6

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6.11.3 The Interconnection Request shall be evaluated using the maximum rated capacity of the Generating Facility.

# ATTACHMENT I INTERCONNECTION REQUEST

EDC: \_\_\_\_\_

Designated Contact Person: \_\_\_\_\_

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

Telephone Number: \_\_\_\_\_

Fax: \_\_\_\_\_

E-Mail Address: \_\_\_\_\_

An Interconnection Request is considered complete when it provides all applicable and correct information required below. Documentation of site control must be submitted with the Interconnection Request.

## Preamble and Instructions

A Generator which requests Interconnection must submit this Interconnection Request by hand delivery, mail, e-mail, or fax to the EDC.

Processing Fee or Payment:

Table 1 Fees			
Process	Generator Applicability*	Application Fee	Each Study Fee
Fast Track	0-2MW	\$500	Actual Cost Based
Study	(1) is larger than 2 MW but no larger than 20 MW, (2) is 2 MW or less and is not certified, or (3) is 2 MW or less and is certified but did not pass the Fast Track Process or the 10 kW Inverter Process.	\$1000	Actual Cost Based

# **ATTACHMENT I**

## **INTERCONNECTION REQUEST**

Each Generating Facility will have a One Line Diagram submitted and secured as an Attachment to the Interconnection Request (Attachment I). A one line electrical schematic is a diagram, drawing, or sketch that details the elements of a generating system, such as the elements of an electrical or electronic circuit or the elements of a logic diagram for a generator.

### Generating Facility Information

Legal Name of the Generator (or, if an individual, individual's name)

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

Contact Person: \_\_\_\_\_

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

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

Facility Location (if different from above): \_\_\_\_\_

Telephone (Day): \_\_\_\_\_ Telephone (Evening): \_\_\_\_\_

Fax: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Alternative Contact Information (if different from the Generator)

**Contact Name:** \_\_\_\_\_

Title: \_\_\_\_\_

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

Telephone (Day): \_\_\_\_\_ Telephone (Evening): \_\_\_\_\_

Fax: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

### APPLICATION IS FOR:

New Generating Facility? Yes \_\_\_ No \_\_\_

Capacity addition to or Material Modification of an existing Generating Facility:

Yes \_\_\_ No \_\_\_

Commencement of participation in the wholesale markets by an existing Generating Facility:

Yes \_\_\_ No \_\_\_

# ATTACHMENT I

## INTERCONNECTION REQUEST

If capacity addition to or Material Modification of an existing facility, please describe: \_\_\_\_\_

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Will the Generating Facility be used for any of the following?

To Net Meter? Yes \_\_\_ No \_\_\_

To Supply Power to the Generating Facility? Yes \_\_\_ No \_\_\_

To Supply Power to Others? Yes \_\_\_ No \_\_\_

Is the Interconnection Request for::

A retail customer interconnecting a new Generating Facility that will produce electric energy to be consumed only on the retail customer's site? Yes \_\_\_ No \_\_\_

If onsite use of power, describe the mode of operation: (Please Check all that Apply)

- Peak Shaving
- Demand Management
- Primary Power/Base Load
- Combined Heat and Power or Cogeneration
- Stand By/Emergency/Back-up

Paralleling:

Will the Generating Facility operate in parallel with the EDC for any amount of time?

Yes \_\_\_ No \_\_\_

If No: Then Generator is operating as Open Transition

If Yes: Will the Generating Facility operate in parallel with EDC for longer than 100 milliseconds

Yes \_\_\_ No \_\_\_

If No: Then Generator is operating as Closed Transition

If Yes: Then Generator is operating as Parallel Operation

Will it vary by season? (please describe) \_\_\_\_\_

A Qualifying Facility where 100% of the output will be sold to its host utility?

Yes \_\_\_ No \_\_\_

A Generator interconnecting a new Generating Facility that plans to participate in the wholesale markets? Yes \_\_\_ No \_\_\_

An existing Generating Facility commencing participation in the wholesale markets?

Yes \_\_\_ No \_\_\_

# **ATTACHMENT I**

## **INTERCONNECTION REQUEST**

For installations at locations with existing electric service to which the proposed Generating Facility will interconnect, provide:

(Local Electric Service Provider) \_\_\_\_\_

(Existing Account Number) \_\_\_\_\_

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

Title: \_\_\_\_\_

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

Telephone (Day): \_\_\_\_\_ Telephone (Evening): \_\_\_\_\_

Fax: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Requested Point of Interconnection: \_\_\_\_\_

Generating Facility's Requested In-Service Date: \_\_\_\_\_

EDC Account # \_\_\_\_\_

EDC Meter # \_\_\_\_\_

Will there be a new service request / or new construction associated with this generation project?

Generating Facility Information (For each Generator if there are than one)

Data apply only to the Generating Facility, not the Interconnection Facilities.

Energy Source: \_\_\_ Solar \_\_\_ Wind \_\_\_ Hydro \_\_\_ Hydro Type (e.g. Run-of-River): \_\_\_\_\_ Diesel \_\_\_ Natural Gas \_\_\_ Fuel Oil \_\_\_  
Other (state type) \_\_\_\_\_

Prime Mover: \_\_\_ Fuel Cell \_\_\_ Reciprocating Engine \_\_\_ Gas Turbine  
Steam Turbine \_\_\_ Micro-turbine \_\_\_ PV \_\_\_ Other

Type of Generator: \_\_\_ Synchronous \_\_\_ Induction \_\_\_ Inverter \_\_\_\_\_

Generator Nameplate Rating: \_\_\_\_\_ kW (Typical)

# ATTACHMENT I INTERCONNECTION REQUEST

Generator Nameplate kVAR: \_\_\_\_\_

Generator Nameplate BIL Rating: \_\_\_\_\_ kV

Generating Facility or Customer-Site Load: \_\_\_\_\_ kW (if none, so state)

Typical Reactive Load (if known): \_\_\_\_\_

Maximum Physical Export Capability Requested: \_\_\_\_\_ kW

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

Equipment Type	Certifying Entity
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

Is the prime mover compatible with the certified protective relay package?

Yes       No

Generator \_\_\_\_\_

Manufacturer, Model Name & Number: \_\_\_\_\_

Version Number: \_\_\_\_\_

Nameplate Output Power Rating in kW:  
(Summer) \_\_\_\_\_ (Winter) \_\_\_\_\_

Nameplate Output Power Rating in kVA:  
(Summer) \_\_\_\_\_ (Winter) \_\_\_\_\_

Individual Generator Power Factor  
Rated Power Factor: Leading: \_\_\_\_\_ Lagging: \_\_\_\_\_

Total Number of Generators in wind farm to be interconnected pursuant to this  
Interconnection Request: \_\_\_\_\_ Elevation: \_\_\_\_\_  Single phase     Three phase

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

# ATTACHMENT I

## INTERCONNECTION REQUEST

List of adjustable set points for the protective equipment or software:

\_\_\_\_\_

\_\_\_\_\_

Note: A completed Power Systems Load Flow data sheet must be supplied with the Interconnection Request.

### Generating Facility Characteristic Data (for inverter-based machines)

Max design fault contribution current: \_\_\_\_\_ Instantaneous \_\_\_\_ or RMS? \_\_\_\_\_

Harmonics Characteristics: \_\_\_\_\_

Start-up requirements: \_\_\_\_\_

Available fault current: \_\_\_\_\_

### Generating Facility Characteristic Data (for rotating machines)

RPM Frequency: \_\_\_\_\_

Neutral Grounding Resistor (If Applicable): \_\_\_\_\_

#### Synchronous Generators:

Direct Axis Synchronous Reactance,  $X_d$ : \_\_\_\_\_ Per Unit

Direct Axis Transient Reactance,  $X_d'$ : \_\_\_\_\_ Per Unit

Direct Axis Sub transient Reactance,  $X_d''$ : \_\_\_\_\_ Per Unit

Negative Sequence Reactance,  $X_2$ : \_\_\_\_\_ Per Unit

Zero Sequence Reactance,  $X_0$ : \_\_\_\_\_ Per Unit

KVA Base: \_\_\_\_\_

Field Volts: \_\_\_\_\_

Field Amperes: \_\_\_\_\_

#### Induction Generators:

Motoring Power (kW): \_\_\_\_\_

$I_2^2t$  or K (Heating Time Constant): \_\_\_\_\_

Rotor Resistance,  $R_r$ : \_\_\_\_\_ Per Unit

Stator Resistance,  $R_s$ : \_\_\_\_\_ Per Unit

Stator Reactance,  $X_s$ : \_\_\_\_\_ Per Unit

Rotor Reactance,  $X_r$ : \_\_\_\_\_ Per Unit

Magnetizing Reactance,  $X_m$ : \_\_\_\_\_ Per Unit

# ATTACHMENT I

## INTERCONNECTION REQUEST

Short Circuit Reactance,  $X_d''$ : \_\_\_\_\_ Per Unit  
Exciting Current: \_\_\_\_\_ Amps  
Temperature Rise: \_\_\_\_\_  
Frame Size: \_\_\_\_\_  
Design Letter: \_\_\_\_\_  
Reactive Power Required In Vars (No Load): \_\_\_\_\_  
Reactive Power Required In Vars (Full Load): \_\_\_\_\_  
Total Rotating Inertia, H: \_\_\_\_\_ Per Unit on kVA Base

### Excitation and Governor System Data for Synchronous Generators Only.

Provide appropriate IEEE model block diagram of excitation system, governor system and power system stabilizer (PSS) in accordance with the regional reliability council criteria. A PSS may be determined to be required by applicable studies. A copy of the manufacturer's block diagram may not be substituted.

### Interconnection Facilities Information

An Interconnection transformer is required unless waived by the Interconnecting EDC.

### Transformer Data (If Applicable, for Generating Facility-Owned Transformer):

Is the transformer: \_\_\_ single phase \_\_\_ three phase? Size: \_\_\_\_\_ kVA  
Transformer Impedance: \_\_\_\_\_ % on \_\_\_\_\_ kVA Base  
Transformer Positive-Sequence Short Circuit Impedances (pu):  $Z_{ps}$ = \_\_\_\_\_,  $Z_{pt}$ = \_\_\_\_\_,  $Z_{st}$ = \_\_\_\_\_  
Transformer Zero-Sequence Impedances (pu):  $Z_{pm0}$ = \_\_\_\_\_,  $Z_{sm0}$ = \_\_\_\_\_,  $Z_{mg0}$ = \_\_\_\_\_  
Transformer Neutral Grounding Reactor/Resistor Impedance (Ohms): \_\_\_\_\_  
Transformer BIL Rating \_\_\_\_\_ kV  
If Three Phase:  
Transformer Primary: \_\_\_\_\_ Volts \_\_\_ Delta \_\_\_ Wye \_\_\_ Wye Grounded  
Transformer Secondary: \_\_\_\_\_ Volts \_\_\_ Delta \_\_\_ Wye \_\_\_ Wye Grounded  
Transformer Tertiary: \_\_\_\_\_ Volts \_\_\_ Delta \_\_\_ Wye \_\_\_ Wye Grounded

### Transformer Fuse Data (If Applicable, for Generating Facility-Owned Fuse):

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

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Size: \_\_\_\_\_ Speed: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# ATTACHMENT I INTERCONNECTION REQUEST

Interconnecting Circuit Breaker (if applicable):

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_  
 Load Rating (Amps): \_\_\_\_\_ Interrupting Rating (Amps): \_\_\_\_\_ Trip Speed (Cycles):  
 \_\_\_\_\_

Interconnection Protective Relays (If Applicable):

If Microprocessor-Controlled:

List of Functions and Adjustable Set points for the protective equipment or software:

Set point Function	Minimum	Maximum
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____

If Discrete Components:

(Enclose Copy of any Proposed Time-Overcurrent Coordination Curves)

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_  
 Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_  
 Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_  
 Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_  
 Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Style/Catalog No.: \_\_\_\_\_ Proposed Setting: \_\_\_\_\_

Current Transformer Data (If Applicable):

\_\_\_\_\_

# **ATTACHMENT I**

## **INTERCONNECTION REQUEST**

(Enclose Copy of Manufacturer's Excitation and Ratio Correction Curves)

Manufacturer: \_\_\_\_\_  
Type: \_\_\_\_\_ Accuracy Class: \_\_\_ Proposed Ratio Connection: \_\_\_\_\_

Manufacturer: \_\_\_\_\_  
Type: \_\_\_\_\_ Accuracy Class: \_\_\_ Proposed Ratio Connection: \_\_\_\_\_

### Potential Transformer Data (If Applicable):

Manufacturer: \_\_\_\_\_  
Type: \_\_\_\_\_ Accuracy Class: \_\_\_ Proposed Ratio Connection: \_\_\_\_\_

Manufacturer: \_\_\_\_\_  
Type: \_\_\_\_\_ Accuracy Class: \_\_\_ Proposed Ratio Connection: \_\_\_\_\_

### General Information

Enclose two D-sized (24" x 36") copies of site electrical one-line diagram showing the configuration of all Generating Facility equipment (unless waived by the EDC), current and potential circuits, and protection and control schemes. This D-sized one-line diagram must be signed and stamped by a licensed Professional Engineer if the Generating Facility is larger than 50 kW. Are two copies of 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., USGS topographic map or other diagram or documentation).

Proposed location of protective interface equipment on property (include address if different from the Generating Facility's address) \_\_\_\_\_

Enclose copy of any site documentation that describes and details the operation of the protection and control schemes.

Is Available Documentation Enclosed? \_\_\_ Yes \_\_\_ No

Enclose copies of schematic drawings for all protection and control circuits, relay current circuits including CT's wiring connection and their ratios, relay potential circuits including Potential Transformer's (PT's) wiring connection and their ratios, any alarm/monitoring circuits (if applicable).

Are Schematic Drawings Enclosed? \_\_\_ Yes \_\_\_ No

# **ATTACHMENT I**

## **INTERCONNECTION REQUEST**

Applicant Signature

I have read the Guidelines for Generator Interconnection – Fast Track and Study Processes and agree to abide by all terms and conditions as provided for in these Guidelines. I understand that my Interconnection Request may be rejected by the Interconnecting EDC or there may be a delay in processing my Interconnection Request if the Interconnecting EDC determines that I have not complied with these Guidelines.

I hereby certify that, to the best of my knowledge, all the information provided in this Interconnection Request is true and correct.

For Generator: \_\_\_\_\_ Date: \_\_\_\_\_

**ATTACHMENT II  
APPLICATION ACKNOWLEDGEMENT  
RECEIPT-SAMPLE FORM**

Receipt of Interconnection Application

*(CL&P/UI Use Only)*

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

Date Interconnection Request Received: \_\_\_\_\_

Received By: \_\_\_\_\_

Application Number \_\_\_\_\_

**ATTACHMENT III  
INFORMATION REQUEST- SAMPLE FORM**

Missing Application Information  
*(CLE&P/UI Use Only)*

Interconnection Application #: \_\_\_\_\_

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

Missing Elements:

- |   |                   |
|---|-------------------|
| <input type="checkbox"/> Payment Deficient  | Date Cured: _____ |
| <input type="checkbox"/> Signed Application | Date Cured: _____ |
| <input type="checkbox"/> One Line Schematic | Date Cured: _____ |
| <input type="checkbox"/> Site Plan          | Date Cured: _____ |
| <input type="checkbox"/> Technical Data     | Date Cured: _____ |
| <input type="checkbox"/> Insurance          | Date Cured: _____ |

Date Deemed Valid Interconnection Request: \_\_\_\_\_

Deemed Valid By: \_\_\_\_\_

# ATTACHMENT IV FEASIBILITY STUDY AGREEMENT

## Feasibility Study Agreement

This Feasibility Study Agreement (this “**Agreement**”), dated as of \_\_\_\_\_ (the “**Effective Date**”), is entered into by and between [Connecticut Light and Power, a Connecticut corporation with a principal place of business at 107 Selden St, Berlin, CT, 06037] [**or**] [The United Illuminating Company, a specially chartered Connecticut corporation with a principal place of business at 157 Church Street, New Haven, CT 06510] (the “**EDC**”), and \_\_\_\_\_, a \_\_\_\_\_ with a principal place of business at \_\_\_\_\_ (“**Generator**”). (EDC and Generator are collectively referred to as the “**Parties**” and individually as a “**Party**”).

### RECITALS

**WHEREAS**, Generator is proposing to develop a Generating Facility or increase the generating capacity of an existing Generating Facility consistent with the Interconnection Request completed by Generator on \_\_\_\_\_;

**WHEREAS**, Generator desires to interconnect the Generating Facility with the Distribution System; and

**WHEREAS**, Generator has requested the EDC to perform a Feasibility Study to assess the feasibility of interconnecting the proposed Generating Facility with the facilities that are part of the EDC’s Distribution System, and of any Affected Systems (the “**Feasibility Study**”).

**NOW, THEREFORE**, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

- 1.0 Capitalized terms used herein but not defined herein shall have the meanings ascribed to such terms in the EDC’s Guidelines for Generator Interconnection (the “**Guidelines**”).
- 2.0 The EDC shall conduct a Feasibility Study in accordance with the Guidelines.
- 3.0 The scope of the Feasibility Study shall be subject to the assumptions set forth in Exhibit A to this Agreement.
- 4.0 The Feasibility Study shall be based on the technical information provided by the Generator in its Interconnection Request, as may be modified as the result of the Scoping Meeting. At the reasonable request of the EDC, the Generator shall promptly provide additional technical information to the EDC.
- 5.0 In performing the Feasibility Study, the EDC may rely, to the extent reasonably practicable, on other existing studies in the EDC’s possession.

## **ATTACHMENT IV FEASIBILITY STUDY AGREEMENT**

- 6.0 At the request of the Generator and at the Generator's sole cost and expense, the Feasibility Study shall include the feasibility of any Interconnection at a proposed project site where there could be multiple potential Points of Interconnection.
- 7.0 In conjunction with the execution of this Agreement, the EDC shall provide to the Generator a written good faith estimate of the cost of the Feasibility Study (the "**Cost Estimate**"). Prior to commencement of the Feasibility Study, the Generator shall pay the Cost Estimate to the EDC.
- 8.0 Following the conclusion of the Feasibility Study, the EDC shall prepare a Feasibility Study report (the "**Report**"), which shall provide the following analyses for the purpose of identifying any potential adverse system impacts that would result from the Interconnection of the Generating Facility as proposed:
- 8.1 Initial identification of any circuit breaker or other facility short circuit capability limits exceeded as a result of the Interconnection;
  - 8.2 Initial identification of any thermal overload or voltage limit violations resulting from the Interconnection;
  - 8.3 Initial review of grounding requirements and electric system protection; and
  - 8.4 A non-binding estimate of the cost (including a description thereof) of facilities required to interconnect the proposed Generating Facility.
- 9.0 The EDC shall use commercially reasonable efforts to provide the Report to the Generator within thirty (30) days of the later of (a) execution of this Agreement and (b) payment of the Cost Estimate by the Generator.
- 10.0 Within thirty (30) days of the completion of the Feasibility Study, the EDC shall calculate the actual costs of the Feasibility Study (the "**Actual Cost**"), and the EDC shall provide an invoice to the Generator which shall include the Actual Cost and the basis for the calculation of the Actual cost.
- 11.0 In the event the Actual Cost exceeds the Cost Estimate, the Generator shall pay the difference to the EDC within thirty (30) Calendar Days of the invoice date (without interest). In the event the Cost Estimate exceeds the Actual Cost, the EDC shall pay the excess to the Generator within thirty (30) Calendar Days of the invoice date (without interest).
- 12.0 Miscellaneous.
- 12.1 Accuracy of Information. The Generator represents and warrants that, to the best of its knowledge, the information it provides to the EDC in connection with this Agreement and the Feasibility Study shall be accurate and complete as of the date such information is provided. The Generator

## **ATTACHMENT IV FEASIBILITY STUDY AGREEMENT**

shall promptly provide the EDC with any additional information needed to update information previously provided.

12.2 Disclaimer of Warranty. In performing the Feasibility Study, the EDC may rely on information provided by the Generator and third parties, and may not have control over the accuracy of such information. ACCORDINGLY, THE EDC HEREBY EXPRESSLY DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, WHETHER ARISING BY OPERATION OF LAW, COURSE OF PERFORMANCE OR DEALING, CUSTOM, USAGE IN THE TRADE OR PROFESSION, OR OTHERWISE, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Generator acknowledges that it has not relied on any representations or warranties not specifically set forth herein and that no such representations or warranties have formed the basis of its bargain hereunder.

12.3 Force Majeure, Liability and Indemnification.

12.3.1 Force Majeure. If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, such Party will promptly notify the other Party in writing, and will keep the other Party informed on a continuing basis of the scope and duration of the Force Majeure Event. The affected Party shall 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 may 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 commercially reasonable efforts. The affected Party shall use commercially reasonable efforts to resume its performance as soon as possible. Without limiting this section, the Generator shall immediately notify the EDC verbally if the failure to fulfill the Generator's obligations under this Agreement may impact the safety or reliability of the EDC EPS. For purposes of this Agreement, "***Force Majeure Event***" means any event or circumstance that (a) is beyond the reasonable control of the affected Party and (b) the affected Party is unable to prevent or provide against by exercising commercially reasonable efforts. Force Majeure Events include the following events or circumstances, but only to the extent they satisfy the foregoing requirements: (i) acts of war or terrorism, public disorder, insurrection, or rebellion; (ii) floods, hurricanes, earthquakes, lightning, storms, and other natural calamities; (iii) explosions or fire; (iv) strikes, work stoppages, or labor disputes; (v)

## **ATTACHMENT IV FEASIBILITY STUDY AGREEMENT**

embargoes; and (vi) sabotage. In no event shall the lack of funds or the inability to obtain funds constitute a Force Majeure Event.

- 12.3.2 Liability. Except with respect to a Party's fraud or willful misconduct, and except with respect to damages sought by a third party in connection with a third party claim: (a) neither Party shall be liable to the other Party, for any damages other than direct damages; and (b) each Party agrees that it is not entitled to recover and agrees to waive any claim with respect to, and will not seek, consequential, punitive or any other special damages as to any matter under, relating to, arising from or connected to this Agreement.. Notwithstanding the foregoing, nothing in this Section 13.3.2 shall be deemed to limit Generator's obligations under Section 13.3.3.
- 12.3.3 Indemnification. The Generator shall indemnify, defend and hold harmless the EDC and its trustees, directors, officers, employees and agents (including affiliates, contractors and their employees) from and against any liability, damage, loss, claim, demand, complaint, suit, proceeding, action, audit, investigation, obligation, cost, judgment, adjudication, arbitration decision, penalty (including fees and fines), or expense (including court costs and attorneys' fees) relating to, arising from or connected to this Agreement.
- 12.4 Term and Termination. This Agreement shall be effective from the Effective Date until the earlier of (a) one year from the Effective Date and (b) the withdrawal of the Generator's Interconnection Request, unless extended by written agreement of the Parties. Notwithstanding the foregoing, the EDC may terminate this Agreement fifteen (15) days after providing written notice to the Generator that it has breached any of its obligations hereunder, if such breach has not been cured within such fifteen (15) day period.
- 12.5 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Connecticut applicable to contracts made and performed in such State and without regard to conflicts of law doctrines.
- 12.6 Severability. If any provision of this Agreement is held to be unenforceable for any reason, such provision shall be adjusted rather than voided, if possible, to achieve the intent of the Parties. If no such adjustment is possible, such provision shall be fully severable and severed, and all other provisions of this Agreement will be deemed valid and enforceable to the extent possible.
- 12.7 Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, and all counterparts so executed shall constitute one agreement binding on all of the Parties hereto,

## **ATTACHMENT IV FEASIBILITY STUDY AGREEMENT**

notwithstanding that all of the Parties are not signatories to the same counterpart. Facsimile counterparts may be delivered by any Party, with the intention that they shall have the same effect as an original counterpart hereof.

- 12.8 Amendment. No amendment, modification or waiver of any term hereof shall be effective unless set forth in writing and signed by the Parties hereto.
- 12.9 Survival. The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of termination.
- 12.10 Independent Contractor. EDC shall at all times be deemed to be an independent contractor of the Generator, and none of the EDC's employees, contractors or the employees of its contractors shall be deemed to be employees of the Generator as a result of this Agreement.
- 12.11 No Implied Waivers. No failure on the part of any Party to exercise or delay in exercising any right hereunder shall be deemed a waiver thereof, nor shall any single or partial exercise of any right hereunder preclude any further or other exercise of such or any other right..
- 12.12 Successors and Assigns. Neither Party may assign this Agreement, by operation of law or otherwise, without the prior written consent of the other Party, which consent shall not be unreasonably withheld. In the event of an assignment authorized hereunder, each and every term and condition hereof shall be binding upon and inure to the benefit of the Parties and their respective successors and assigns.
- 12.13 Due Authorization. Each Party represents and warrants to the other that (a) it has full power and authority to enter into this Agreement and to perform its obligations hereunder, (b) execution of this Agreement will not violate any other agreement with a third party, and (c) the individual signing this Agreement on its behalf has been properly authorized and empowered to enter into this Agreement.

*[Signature page follows.]*

**ATTACHMENT IV  
FEASIBILITY STUDY AGREEMENT**

IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

**[Insert name of the Generator]**

\_\_\_\_\_

Signed \_\_\_\_\_

Name (Printed):

\_\_\_\_\_

Title \_\_\_\_\_

**[Insert name of the EDC]**

\_\_\_\_\_

Signed \_\_\_\_\_

Name (Printed):

\_\_\_\_\_

Title \_\_\_\_\_

**ATTACHMENT IV  
FEASIBILITY STUDY AGREEMENT**

EXHIBIT A

**ASSUMPTIONS**

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

\_\_\_\_\_:

Designation of Point of Interconnection and configuration to be studied (to be completed by the Generator).

Other assumptions (listed below) are to be provided by the Generator and the Interconnecting EDC.

**ATTACHMENT V**  
**DISTRIBUTION SYSTEM IMPACT STUDY**  
**AGREEMENT**

**System Impact Study Agreement**

This System Impact Study Agreement (this “**Agreement**”), dated as of \_\_\_\_\_ (the “**Effective Date**”) is entered into by and between [Connecticut Light and Power, a Connecticut corporation with a principal place of business at 107 Selden St, Berlin, CT, 06037] [**or**] [The United Illuminating Company, a specially chartered Connecticut corporation with a principal place of business at 157 Church Street, New Haven, CT 06510] (the “**EDC**”), and \_\_\_\_\_, a \_\_\_\_\_ with a principal place of business at \_\_\_\_\_ (“**Generator**”). (The EDC and Generator are collectively referred to as the “**Parties**” and individually as a “**Party**”).

**RECITALS**

**WHEREAS**, Generator is proposing to develop a Generating Facility or increase the generating capacity of an existing Generating Facility consistent with the Interconnection Request completed by Generator on \_\_\_\_\_;

**WHEREAS**, Generator desires to interconnect the Generating Facility with the Distribution System;

[**WHEREAS**, the EDC has completed a Feasibility Study with respect to the proposed Interconnection of the Generating Facility and has provided the results of such study to Generator;] and [***This recital to be omitted if the Parties have agreed to forego the Feasibility Study in accordance with the Guidelines.***]

**WHEREAS**, Generator has requested the EDC to perform a Distribution System Impact Study to assess the impact of the proposed Interconnection the Generating Facility.

**NOW, THEREFORE**, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

- 1.0 Capitalized terms used herein but not defined herein shall have the meanings ascribed to such terms in the EDC’s Guidelines for Generator Interconnection (the “**Guidelines**”).
- 2.0 The EDC shall conduct or cause to be conducted a Distribution System Impact Study in accordance with the Guidelines (the “**DSI Study**”).
- 3.0 The DSI Study shall be based upon the results of the Feasibility Study, if conducted, the technical information provided by Generator in the Interconnection Request, and the assumptions set forth in Exhibit A to this Agreement (the “**Assumptions**”). At the reasonable request of the EDC, the Generator shall promptly provide additional technical information to the EDC.

**ATTACHMENT V**  
**DISTRIBUTION SYSTEM IMPACT STUDY**  
**AGREEMENT**

- 4.0 The DSI Study shall incorporate any combination of the following: (a) short circuit analyses; (b) stability analyses; (c) power flow analyses; (d) distribution load flow studies; (e) analyses of equipment interrupting ratings; (f) voltage drop and flicker studies; (g) protection coordination studies; (h) protection and set point coordination studies; and (i) grounding reviews.
- 5.0 Any Affected System may participate in the DSI Study at its own cost.
- 6.0 In connection with the DSI Study, the EDC shall consider the impact of the proposed Interconnection of the Generating Facility in light of other generating facilities that, on the date the Study is commenced:
- 6.1 are currently interconnected with the Distribution System or an Affected System;
- 6.2 are expected to be interconnected with the Distribution System or an Affected System; and
- 6.3 have an earlier queue position (as assigned by the EDC pursuant to Section 3.7 of the Guidelines) than the Generating Facility.
- 7.0 In conjunction with the execution of this Agreement, the EDC shall provide to the Generator a written good faith estimate of the cost of the DSI Study (the “*Cost Estimate*”). Prior to commencement of the DSI Study, the Generator shall pay the Cost Estimate to the EDC.
- 8.0 Following the conclusion of the DSI Study, the EDC shall prepare a DSI Study report (the “*Report*”). The Report shall (a) state the assumptions upon which the DSI Study was based, (b) set forth the results of the various analyses and reviews, (c) provide the requirement or potential impediments to providing the requested Interconnection service, (d) provide an initial estimate of the cost and time necessary to correct any problems, if any, identified in the Report; and (e) provide a list of facilities that are required to implement the Interconnection of the Generating Facility, along with and a non-binding good faith estimate of cost responsibility and time to construct such facilities.
- 9.0 Any Affected System that may be adversely impacted by the proposed Interconnection shall be afforded an opportunity to review and comment on the Report.
- 10.0 The EDC shall use commercially reasonable efforts to provide the Report to the Generator within thirty (30) days of the later of (a) execution of this Agreement and (b) payment of the Cost Estimate by the Generator; provided, however, that such time frame will be extended by up to an additional twenty (20) Business Days in the event review and comment is required by an Affected System pursuant to Section 9.0 of this Agreement.

# **ATTACHMENT V**

## **DISTRIBUTION SYSTEM IMPACT STUDY**

### **AGREEMENT**

- 11.0 Within thirty (30) days of the completion of the DSI Study, the EDC shall calculate the actual costs of the DSI Study (the “*Actual Cost*”), and the EDC shall provide an invoice to the Generator which shall include the Actual Cost and the basis for the calculation thereof.
- 12.0 In the event the Actual Cost exceeds the Cost Estimate, the Generator shall pay the difference to the EDC within thirty (30) Calendar Days of the invoice date (without interest). In the event the Cost Estimate exceeds the Actual Cost, the EDC shall pay the excess to the Generator within thirty (30) Calendar Days of the invoice date (without interest).
- 13.0 Miscellaneous.
- 13.1 Accuracy of Information. The Generator represents and warrants that, to the best of its knowledge, the information it provides to the EDC in connection with this Agreement and the DSI Study shall be accurate and complete as of the date such information is provided. The Generator shall promptly provide the EDC with any additional information needed to update information previously provided.
- 13.2 Disclaimer of Warranty. In performing the DSI Study, the EDC may rely on information provided by the Generator and third parties, and may not have control over the accuracy of such information. ACCORDINGLY, THE EDC HEREBY EXPRESSLY DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, WHETHER ARISING BY OPERATION OF LAW, COURSE OF PERFORMANCE OR DEALING, CUSTOM, USAGE IN THE TRADE OR PROFESSION, OR OTHERWISE, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Generator acknowledges that it has not relied on any representations or warranties not specifically set forth herein and that no such representations or warranties have formed the basis of its bargain hereunder.
- 13.3 Force Majeure, Liability and Indemnification.
- 13.3.1 Force Majeure. If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, such Party will promptly notify the other Party in writing, and will keep the other Party informed on a continuing basis of the scope and duration of the Force Majeure Event. The affected Party shall 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 may suspend or modify its performance of obligations under

# **ATTACHMENT V**

## **DISTRIBUTION SYSTEM IMPACT STUDY**

### **AGREEMENT**

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 commercially reasonable efforts. The affected Party shall use commercially reasonable efforts to resume its performance as soon as possible. Without limiting this section, the Generator shall immediately notify the EDC verbally if the failure to fulfill the Generator's obligations under this Agreement may impact the safety or reliability of the EDC EPS. For purposes of this Agreement, “*Force Majeure Event*” means any event or circumstance that (a) is beyond the reasonable control of the affected Party and (b) the affected Party is unable to prevent or provide against by exercising commercially reasonable efforts. Force Majeure Events include the following events or circumstances, but only to the extent they satisfy the foregoing requirements: (i) acts of war or terrorism, public disorder, insurrection, or rebellion; (ii) floods, hurricanes, earthquakes, lightning, storms, and other natural calamities; (iii) explosions or fire; (iv) strikes, work stoppages, or labor disputes; (v) embargoes; and (vi) sabotage. In no event shall the lack of funds or the inability to obtain funds constitute a Force Majeure Event.

- 13.3.2 Liability. Except with respect to a Party's fraud or willful misconduct, and except with respect to damages sought by a third party in connection with a third party claim: (a) neither Party shall be liable to the other Party, for any damages other than direct damages; and (b) each Party agrees that it is not entitled to recover and agrees to waive any claim with respect to, and will not seek, consequential, punitive or any other special damages as to any matter under, relating to, arising from or connected to this Agreement. Notwithstanding the foregoing, nothing in this Section 13.3.2 shall be deemed to limit Generator's obligations under Section 13.3.3.
- 13.3.3 Indemnification. The Generator shall indemnify, defend and hold harmless the EDC and its trustees, directors, officers, employees and agents (including affiliates, contractors and their employees) from and against any liability, damage, loss, claim, demand, complaint, suit, proceeding, action, audit, investigation, obligation, cost, judgment, adjudication, arbitration decision, penalty (including fees and fines), or expense (including court costs and attorneys' fees) relating to, arising from or connected to this Agreement.
- 13.4 Term and Termination. This Agreement shall be effective from the Effective Date until the earlier of (a) one year from the Effective Date and (b) the withdrawal of the Generator's Interconnection Request, unless extended in writing by the Parties. Notwithstanding the foregoing, the EDC may terminate this Agreement fifteen (15) days after providing written notice

**ATTACHMENT V**  
**DISTRIBUTION SYSTEM IMPACT STUDY**  
**AGREEMENT**

to the Generator that it has breached any of its obligations hereunder, if such breach has not been cured within such fifteen (15) day period.

- 13.5 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Connecticut applicable to contracts made and performed in such State and without regard to conflicts of law doctrines.
- 13.6 Severability. If any provision of this Agreement is held to be unenforceable for any reason, such provision shall be adjusted rather than voided, if possible, to achieve the intent of the Parties. If no such adjustment is possible, such provision shall be fully severable and severed, and all other provisions of this Agreement will be deemed valid and enforceable to the extent possible.
- 13.7 Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, and all counterparts so executed shall constitute one agreement binding on all of the Parties hereto, notwithstanding that all of the Parties are not signatories to the same counterpart. Facsimile counterparts may be delivered by any Party, with the intention that they shall have the same effect as an original counterpart hereof.
- 13.8 Amendment. No amendment, modification or waiver of any term hereof shall be effective unless set forth in writing and signed by the Parties hereto.
- 13.9 Survival. The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of termination.
- 13.10 Independent Contractor. EDC shall at all times be deemed to be an independent contractor of the Generator, and none of the EDC's employees, contractors or the employees of its contractors shall be deemed to be employees of the Generator as a result of this Agreement.
- 13.11 No Implied Waivers. No failure on the part of any Party to exercise or delay in exercising any right hereunder shall be deemed a waiver thereof, nor shall any single or partial exercise of any right hereunder preclude any further or other exercise of such or any other right.
- 13.12 Successors and Assigns. Neither Party may assign this Agreement, by operation of law or otherwise, without the prior written consent of the other Party, which consent shall not be unreasonably withheld. In the event of an assignment authorized hereunder, each and every term and condition hereof shall be binding upon and inure to the benefit of the Parties and their respective successors and assigns.

**ATTACHMENT V**  
**DISTRIBUTION SYSTEM IMPACT STUDY**  
**AGREEMENT**

- 13.13 Due Authorization. Each Party represents and warrants to the other that (a) it has full power and authority to enter into this Agreement and to perform its obligations hereunder, (b) execution of this Agreement will not violate any other agreement with a third party, and (c) the individual signing this Agreement on its behalf has been properly authorized and empowered to enter into this Agreement.

*[Signature page follows.]*

**ATTACHMENT V  
DISTRIBUTION SYSTEM IMPACT STUDY  
AGREEMENT**

IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

**[Insert name of the Generator]**

\_\_\_\_\_

Signed \_\_\_\_\_

Name (Printed):

\_\_\_\_\_

Title \_\_\_\_\_

**[Insert name of the EDC]**

\_\_\_\_\_

Signed \_\_\_\_\_

Name (Printed):

\_\_\_\_\_

Title \_\_\_\_\_

**ATTACHMENT V**  
**DISTRIBUTION SYSTEM IMPACT STUDY**  
**AGREEMENT**

EXHIBIT A

ASSUMPTIONS

The DSI Study shall be based upon the results of the Feasibility Study, subject to any modifications in accordance with the standard Guidelines for Generator Interconnection, and the following assumptions:

Designation of Point of Interconnection and configuration to be studied (to be completed by the Generator).

Other assumptions (listed below) are to be provided by the Generator and the Interconnecting EDC.

# ATTACHMENT VI FACILITY STUDY AGREEMENT

## Facility Study Agreement

This Facility Study Agreement (this “*Agreement*”), dated as of \_\_\_\_\_ (the “*Effective Date*”) is entered into by and between [Connecticut Light and Power, a Connecticut corporation with a principal place of business at 107 Selden St, Berlin, CT, 06037] [*or*] [The United Illuminating Company, a specially chartered Connecticut corporation with a principal place of business at 157 Church Street, New Haven, CT 06510] (the “*EDC*”), and \_\_\_\_\_, a \_\_\_\_\_ with a principal place of business at \_\_\_\_\_ (“*Generator*”). (The EDC and Generator are collectively referred to as the “*Parties*” and individually as a “*Party*”).

### RECITALS

**WHEREAS**, Generator is proposing to develop a Generating Facility or increase the generating capacity of an existing Generating Facility consistent with the Interconnection Request completed by Generator on \_\_\_\_\_;

**WHEREAS**, Generator desires to interconnect the Generating Facility with the Distribution System;

**WHEREAS**, the EDC has completed a [Distribution/Transmission] System Impact Study with respect to the proposed Interconnection of the Generating Facility and provided the results of such study to Generator on \_\_\_\_\_ (the “*System Impact Study*”); and [*If both System Impact Studies are conducted, then this will be appropriately modified and the defined term “System Impact Studies” will be used.*]

**WHEREAS**, Generator has requested the EDC to perform a Facility Study to specify and estimate the cost of the equipment, engineering, procurement and construction work required pursuant to the conclusions of the System Impact Study.

**NOW, THEREFORE**, in consideration of and subject to the mutual covenants contained herein the Parties agreed as follows:

- 1.0 Capitalized terms used herein but not defined herein shall have the meanings ascribed to such terms in the EDC’s Guidelines for Generator Interconnection (the “*Guidelines*”).
- 2.0 The EDC shall conduct or cause to be conducted a Facility Study in accordance with the Guidelines (the “*Facility Study*”).
- 3.0 The scope of the Facility Study shall be based on the conclusions of the System Impact Study and the data provided by Generator in Exhibit A to this Agreement (the “*Data*”). At the reasonable request of the EDC, the Generator shall promptly provide additional data to the EDC.

## **ATTACHMENT VI**

### **FACILITY STUDY AGREEMENT**

- 4.0 In order to minimize Generator's facilities costs, the EDC may recommend that Generator and other third parties wishing to make an Interconnection "group" and share the costs of facilities; provided, however, that Generator may, in its sole discretion, require the installation of its own facilities for the Generating Facility if it is willing to pay the entire costs thereof.
- 5.0 In conjunction with the execution of this Agreement, the EDC shall provide to the Generator a written good faith estimate of the cost of the Facility Study (the "**Cost Estimate**"). Prior to commencement of the Facility Study, the Generator shall pay the Cost Estimate to the EDC.
- 6.0 Following the conclusion of the Facility Study, the EDC shall prepare a report setting forth the results of the Facility Study (the "**Report**"). The Report may include, but is not limited to: (a) specification and estimation of the equipment, engineering, procurement and construction work (including overheads) needed to implement the conclusions of the System Impact Study; (b) identification of the electrical switching configuration of the equipment (including, without limitation, transformer, switchgear, meters, and other station equipment); and (c) estimation of the nature and estimated cost of the EDC's Interconnection Facilities and upgrades necessary to accomplish the Interconnection (including, without limitation, an estimation of the time required to complete the construction and installation of such facilities).
- 7.0 The EDC shall use commercially reasonable efforts to provide the Report to the Generator within thirty (30) days of the later of (a) execution of this Agreement and (b) payment of the Cost Estimate by the Generator; provided, however, that such time frame will be extended by an additional fifteen (15) Business Days in the event upgrades are required.
- 8.0 Within thirty (30) days of the completion of the Facility Study, the EDC shall calculate the actual costs of the Facility Study (the "**Actual Cost**"), and the EDC shall provide an invoice to the Generator which shall include the Actual Cost and the basis for the calculation thereof.
- 9.0 In the event the Actual Cost exceeds the Cost Estimate, the Generator shall pay the difference to the EDC within thirty (30) Calendar Days of the invoice date (without interest). In the event the Cost Estimate exceeds the Actual Cost, the EDC shall pay the excess to the Generator within thirty (30) Calendar Days of the invoice date (without interest).
- 10.0 Miscellaneous.
- 10.1 Accuracy of Information. The Generator represents and warrants that, to the best of its knowledge, the information it provides to the EDC in connection with this Agreement and the Facility Study (including without limitation the Data and all information provided on Generator's Interconnection Request) shall be accurate and complete as of the date such

## **ATTACHMENT VI**

### **FACILITY STUDY AGREEMENT**

information is provided. The Generator shall promptly provide the EDC with any additional information needed to update information previously provided.

10.2 Disclaimer of Warranty. In performing the Facility Study, the EDC may rely on information provided by the Generator and third parties, and may not have control over the accuracy of such information. ACCORDINGLY, THE EDC HEREBY EXPRESSLY DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, WHETHER ARISING BY OPERATION OF LAW, COURSE OF PERFORMANCE OR DEALING, CUSTOM, USAGE IN THE TRADE OR PROFESSION, OR OTHERWISE, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Generator acknowledges that it has not relied on any representations or warranties not specifically set forth herein and that no such representations or warranties have formed the basis of its bargain hereunder.

10.3 Force Majeure, Liability and Indemnification.

10.3.1 Force Majeure. If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, such Party will promptly notify the other Party in writing, and will keep the other Party informed on a continuing basis of the scope and duration of the Force Majeure Event. The affected Party shall 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 may 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 commercially reasonable efforts. The affected Party shall use commercially reasonable efforts to resume its performance as soon as possible. Without limiting this section, the Generator shall immediately notify the EDC verbally if the failure to fulfill the Generator's obligations under this Agreement may impact the safety or reliability of the EDC EPS. For purposes of this Agreement, "***Force Majeure Event***" means any event or circumstance that (a) is beyond the reasonable control of the affected Party and (b) the affected Party is unable to prevent or provide against by exercising commercially reasonable efforts. Force Majeure Events include the following events or circumstances, but only to the extent they satisfy the foregoing requirements: (i) acts of war or terrorism, public disorder, insurrection, or rebellion; (ii) floods, hurricanes, earthquakes, lightning, storms, and other natural calamities; (iii) explosions or fire; (iv) strikes, work stoppages, or labor disputes; (v)

## **ATTACHMENT VI**

### **FACILITY STUDY AGREEMENT**

embargoes; and (vi) sabotage. In no event shall the lack of funds or the inability to obtain funds constitute a Force Majeure Event.

- 10.3.2 Liability. Except with respect to a Party's fraud or willful misconduct, and except with respect to damages sought by a third party in connection with a third party claim: (a) neither Party shall be liable to the other Party, for any damages other than direct damages; and (b) each Party agrees that it is not entitled to recover and agrees to waive any claim with respect to, and will not seek, consequential, punitive or any other special damages as to any matter under, relating to, arising from or connected to this Agreement.. Notwithstanding the foregoing, nothing in this Section 10.3.2 shall be deemed to limit Generator's obligations under Section 10.3.3.
- 10.3.3 Indemnification. The Generator shall indemnify, defend and hold harmless the EDC and its trustees, directors, officers, employees and agents (including affiliates, contractors and their employees) from and against any liability, damage, loss, claim, demand, complaint, suit, proceeding, action, audit, investigation, obligation, cost, judgment, adjudication, arbitration decision, penalty (including fees and fines), or expense (including court costs and attorneys' fees) relating to, arising from or connected to this Agreement.
- 10.4 Term and Termination. This Agreement shall be effective from the Effective Date until the earlier of (a) one year from the Effective Date and (b) the withdrawal of the Generator's Interconnection Request, unless extended in writing by the Parties. Notwithstanding the foregoing, the EDC may terminate this Agreement fifteen (15) days after providing written notice to the Generator that it has breached any of its obligations hereunder, if such breach has not been cured within such fifteen (15) day period.
- 10.5 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Connecticut applicable to contracts made and performed in such State and without regard to conflicts of law doctrines.
- 10.6 Severability. If any provision of this Agreement is held to be unenforceable for any reason, such provision shall be adjusted rather than voided, if possible, to achieve the intent of the Parties. If no such adjustment is possible, such provision shall be fully severable and severed, and all other provisions of this Agreement will be deemed valid and enforceable to the extent possible.
- 10.7 Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, and all counterparts so executed shall constitute one agreement binding on all of the Parties hereto, notwithstanding that all of the Parties are not signatories to the same counterpart. Facsimile counterparts may be delivered by any Party, with the

## **ATTACHMENT VI**

### **FACILITY STUDY AGREEMENT**

intention that they shall have the same effect as an original counterpart hereof.

- 10.8 Amendment. No amendment, modification or waiver of any term hereof shall be effective unless set forth in writing and signed by the Parties hereto.
- 10.9 Survival. The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of termination.
- 10.10 Independent Contractor. EDC shall at all times be deemed to be an independent contractor of the Generator, and none of the EDC's employees, contractors or the employees of its contractors shall be deemed to be employees of the Generator as a result of this Agreement.
- 10.11 No Implied Waivers. No failure on the part of any Party to exercise or delay in exercising any right hereunder shall be deemed a waiver thereof, nor shall any single or partial exercise of any right hereunder preclude any further or other exercise of such or any other right.
- 10.12 Successors and Assigns. Neither Party may assign this Agreement, by operation of law or otherwise, without the prior written consent of the other Party, which consent shall not be unreasonably withheld. In the event of an assignment authorized hereunder, each and every term and condition hereof shall be binding upon and inure to the benefit of the Parties and their respective successors and assigns.
- 10.13 Due Authorization. Each Party represents and warrants to the other that (a) it has full power and authority to enter into this Agreement and to perform its obligations hereunder, (b) execution of this Agreement will not violate any other agreement with a third party, and (c) the individual signing this Agreement on its behalf has been properly authorized and empowered to enter into this Agreement.

***[Signature page follows.]***

**ATTACHMENT VI  
FACILITY STUDY AGREEMENT**

IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

**[Insert name of the Generator]**

\_\_\_\_\_

Signed \_\_\_\_\_

Name (Printed):

\_\_\_\_\_

Title \_\_\_\_\_

**[Insert name of the EDC]**

\_\_\_\_\_

Signed \_\_\_\_\_

Name (Printed):

\_\_\_\_\_

Title \_\_\_\_\_

**ATTACHMENT VI**  
**FACILITY STUDY AGREEMENT**  
EXHIBIT A

**DATA**

The Facility Study shall be based upon the conclusions of the System Impact Study(ies), and the following data provided by Generator:

**ATTACHMENT VII  
CONTINGENT APPROVAL TO  
INTERCONNECT**

**Contingent Approval to Interconnect**

***( CL&P/UI Use Only )***

- |                          |  |                   |
|--------------------------|--|-------------------|
| <input type="checkbox"/> | Elec. Inspector Signoff/<br>Copy of Inspection Sticker | Date Cured: _____ |
| <input type="checkbox"/> | Signed IA's  | Date Cured: _____ |
| <input type="checkbox"/> | Witness Test   | Date Cured: _____ |

Interconnection of the Generating Facility is approved contingent upon compliance with the Interconnection Agreement (Exhibit A) and the Generator's return of a completed Certificate of Completion.

Electric Distribution Company Name: \_\_\_\_\_

Electric Distribution Company Signature: \_\_\_\_\_

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

Title: \_\_\_\_\_ Date: \_\_\_\_\_

Application ID number: \_\_\_\_\_

Generator Name \_\_\_\_\_

Electric Distribution Company waives inspection/witness test? Yes\_\_\_No\_\_\_

**ATTACHMENT VIII  
APPROVAL TO ENERGIZE**

**Approval to Energize the Generating Facility**

***( CL&P/UI Use Only )***

Energizing the Generating Facility is approved contingent upon ongoing compliance with the Interconnection Agreement and Final Approval for

\_\_\_\_\_ Generating Facility.

Electric Distribution Company Name: \_\_\_\_\_

Electric Distribution Company Signature: \_\_\_\_\_

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

Title: \_\_\_\_\_ Date: \_\_\_\_\_

## **ATTACHMENT IX**

### **Certification of Small Generator Equipment Packages**

- 1.0 Small Generating Facility equipment proposed for use separately or packaged with other equipment in an interconnection system shall be considered certified for interconnected operation if (1) it has been tested in accordance with industry standards for continuous utility interactive operation in compliance with the appropriate codes and standards referenced below by any Nationally Recognized Testing Laboratory (NRTL) recognized by the United States Occupational Safety and Health Administration to test and certify interconnection equipment pursuant to the relevant codes and standards listed in Attachment X (2) it has been labeled and is publicly listed by such NRTL at the time of the interconnection application, and (3) such NRTL makes readily available for verification all test standards and procedures it utilized in performing such equipment certification, and, with consumer approval, the test data itself. The NRTL may make such information available on its website and by encouraging such information to be included in the manufacturer's literature accompanying the equipment.
- 2.0 The Generator must verify that the intended use of the equipment falls within the use or uses for which the equipment was tested, labeled, and listed by the NRTL.
- 3.0 Certified equipment shall not require further type-test review, testing, or additional equipment to meet the requirements of this interconnection procedure; however, nothing herein shall preclude the need for an on-site commissioning test by the parties to the interconnection nor follow-up production testing by the NRTL.
- 4.0 If the certified equipment package includes only interface components (switchgear, inverters, or other interface devices), then the Generator must show that the generator or other electric source being utilized with the equipment package is compatible with the equipment package and is consistent with the testing and listing specified for this type of interconnection equipment.
- 5.0 Provided the generator or electric source, when combined with the equipment package, is within the range of capabilities for which it was tested by the NRTL, and does not violate the interface components' labeling and listing performed by the NRTL, no further design review, testing or additional equipment on the customer side of the point of common coupling shall be required to meet the requirements of this interconnection procedure.
- 6.0 An equipment package does not include equipment provided by the utility.
- 7.0 Any equipment package approved and listed in a state by that state's regulatory body for interconnected operation in that state prior to the effective date of these small generator interconnection procedures shall be considered certified under these procedures for use in that state.

# **ATTACHMENT X**

## **CODES AND STANDARDS**

The following existing codes and standards (in addition to any successor codes and standards) shall be applied as appropriate:

ANSI C12.1-2001 “American National Standard for Electric Meter Code for Electricity Metering”

ANSI C12.11-1993 “Instrument Transformers for Metering 15 kV and Below”

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

ANSI/IEEE C37.90-1989 IEEE Standard “Relays and Relay Systems Associated with Electric Power Apparatus”

ANSI/IEEE C37.90-1-1989 IEEE Standard “Surge Withstand Capability [SWC] Tests for Protective Relays and Relay Systems”

ANSI/IEEE C57.13-1987 “Requirements for Instrument Transformers”

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

ANSI/IEEE C62.41-1991 “Recommended Practice on Surge Voltages in Low Voltage AC Power Circuits”

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

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

IEC 1000-4-15 Flicker meter- Functional and Design Specifications

IEC 61400-21 Wind Turbine Generator Systems

IEC 61400-21 Part 21 Measurement and Assessment of Power Quality Characteristics of Grid Connected Wind Turbines

IEEE Std p1453 Draft, Recommended Practices for Measurement and Limits of Voltage Flicker on AC Power Systems

IEEE p 1547.1 Drafts Std for Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems

IEEE p 1547.2 Draft Application Guide for IEEE Standard 1547 for Interconnecting Distributed Resources with Electric Power Systems

# **ATTACHMENT X CODES AND STANDARDS**

IEEE p 1547.3 Draft Guide for Monitoring, Information Exchange and Control of DR Interconnection with Electric Power Systems

IEEE 1547-2003 IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems.

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

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

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

National Electrical Code, NFPA/ANSI 70 (Note: As adopted by State of CT)

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

UL (Underwriters Laboratories) Std 1741- 2007, Inverters, Converters and Charge Controllers for Use in Independent Power Systems

ANSI/ IEEE C37.90.3

IEEE C37.98 Seismic Testing (fragility) of Protective and Auxiliary Relays

ANSI C37.2 Electric Power System Device Function Numbers

IEC 255-21-1 Vibration

IEC 255-22-2 Electrostatic Discharge

IEC 255-5 Insulation (Impulse Voltage Withstand)

# **ATTACHMENT XI**

## **GLOSSARY**

**ANSI:** American National Standards Institute.

**Affected Party or Parties:** The entity that owns, operates or controls an Affected System, or any other entity that otherwise may be a necessary party to the Interconnection process.

**Affected System:** Any electric system that is within the EDC service territory, including, but not limited to generator owned electric facilities, or any other electric system that is not within the EDC service territory that may be affected by the proposed Interconnection.

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

**Applicable Reliability Standards:** The requirements and guidelines of NERC, NPCC and the New England Control Area, ISO, ISO-NE, including publicly available local reliability requirements of Interconnecting EDC or other Affected Systems, and any successor documents.

**Application Review:** A review by the EDC of the completed Interconnection Request Form to determine if a Feasibility, Impact and Facility Studies are required.

**Arc Flash:** A dangerous condition associated with the release of energy caused by an electric arc.

**Autoloop:** A scheme where two or more EPS circuits are tied together with one or more normally-open tie reclosers capable of automatically restoring service to portions of a circuit(s) that were de-energized due to an outage or abnormal circuit condition. Autoloop schemes have been developed to improve reliability and to maintain service to the greatest number of customers.

**Business Day:** Shall mean Monday through Friday, excluding Federal and State Holidays.

**Calendar Day:** Shall mean any day including Saturday, Sunday, Federal and State Holidays.

**CL&P:** The Connecticut Light and Power Company, the EDC that provides service to all of Connecticut except for (a) the towns serviced by UI and (b) the towns of Wallingford, Norwich, Bozrah and certain parts of Groton, Norwalk, and Lebanon.

**Codes and Standards:** The codes and standards set forth on Attachment IX hereto.

**Commercial Operation Date:** The date on which the Generator commences commercial operation of the unit after the unit has been commissioned and likely to be associated with a specific date that is identified in a purchase power agreement or the date that the power transaction starts.

# **ATTACHMENT XI**

## **GLOSSARY**

**Communications Costs:** Any costs associated with installing, testing, and maintaining the communications infrastructure necessary to provide protection and/or monitoring for the generating facility.

**Contract Path:** A specific contiguous electrical path from a point of receipt to a point of delivery for which EPS rights have been contracted.

**Default:** The failure of a breaching Party to cure its breach under the Generator Interconnection Agreement.

**Direct Transfer Trip (DTT):** Direct transfer trip apparatus for sharing a common active communication channel utilized for signal transfer between at least two relay communication units which form a protective channel for protecting at least one distribution power line in a EPS network.

**Distribution System:** The Interconnecting EDC's facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries. The voltage levels at which Distribution Systems generally operate at 69 kV and less.

**Distribution System Impact Study (DSI Study):** An engineering study that evaluates the impact of the proposed Interconnection on the safety and reliability of the EPS. The study shall identify and detail the system impacts that would result if the Generating Facility were interconnected without project modifications or system modifications, focusing on the adverse system impacts identified in the Interconnection Feasibility Study, or to study potential impacts, including but not limited to those identified in the Scoping Meeting.

**DPUC:** Connecticut Department of Public Utility Control.

**EDC(s) :** An electric distribution company, either CL&P and/or UI.

**EDC Facilitator:** A facilitator designated by an EDC to be its primary point of contact for any Interconnection.

**EPS:** The electric power system, consisting of all electrical wires, equipment, and other facilities owned or provided by the EDC to provide distribution service to the EDC's customers.

**Facility Study:** The study conducted by the EDC to determine the scope and costs of required modifications and upgrades to the EPS and/or a Generating Facility necessary for an Interconnection of such Generating Facility.

**Fault:** An equipment failure, short circuit, or other condition resulting from abnormally high amounts of current from the power source.

**Feasibility Study:** A preliminary study to assess the feasibility of interconnecting the Generating Facility to the EPS.

**FERC:** Federal Energy Regulatory Commission.

# **ATTACHMENT XI**

## **GLOSSARY**

**Generator:** The owner and/or operator of a Generating Facility.

**Generating Facility:** The device used for the production of electricity identified in the Interconnection Request, but shall not include the Generating Facility's Interconnection Facilities.

**Generating Facility Capacity:** The maximum gross megawatt electrical output at an ambient temperature of 20 degrees Fahrenheit of the Generating Facility or the aggregate maximum gross megawatt electrical output of the Generating Facility at an ambient temperature of 20 degrees Fahrenheit where it includes multiple energy production devices.

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

**Guidelines:** The "Guidelines for Generator Interconnection: Fast Track and Study Process," prepared by CL&P and UI to describe the protocols and procedures for interconnecting to the EPS.

**IEEE:** Institute of Electrical and Electronics Engineers.

**Independent System Operator (ISO):** An entity supervising the collective transmission facilities of a power region; the ISO is charged with nondiscriminatory coordination of market transactions, system-wide transmission planning, and bulk power network reliability.

**Induction Generator:** An induction machine, when driven above synchronous speed by an external source of mechanical power, used to convert mechanical power to electric power.

**In-Service Date:** The date on which the Generating Facility and system modification (if applicable) are complete and ready for service, even if the Generating Facility is not placed in service on such date.

**Intentional Islanding:** Intentional Islanding occurs when the Generating Facility has been isolated from the EPS by planned operation of disconnecting means consistent with the Technical Requirements and the Generating Facility as a result is serving segregated load(s) on the Generating Facility's side of the Point of Interconnection.

**Interconnecting EDC:** The EDC (i) to which an appropriate Interconnection Request is made or (ii) owning or providing the EPS to which an Interconnection is made.

**Interconnection:** The physical connection of a Generating Facility to the EPS so that parallel operation can occur.

# **ATTACHMENT XI**

## **GLOSSARY**

**Interconnection Agreement:** A written agreement between a Generator and the Interconnecting EDC setting forth the terms, conditions, obligations and rights with respect to an Interconnection. An Interconnection Agreement is required to be signed by the Generator and the EDC before parallel operation of the Generating Facility may commence. Note: the form of Interconnection Agreement is attached to these Guidelines as Exhibit A.

**Interconnection Facilities:** Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the Generating Facility to the Distribution System. The EDC and the Generator may each own Interconnection Facilities with respect to the Generating Facility.

**Interconnection Request:** A Generator's request, in the form of Attachment I, to interconnect a new Generating Facility to the EPS or increase the capacity or operating characteristics an existing Generating Facility currently interconnected to the EPS.

**Interconnection Service:** The service provided by the Interconnecting EDC associated with interconnecting the Generating Facility to the EPS and enabling the delivery of electric energy and capacity from the Generating Facility at the Point of Interconnection, pursuant to the terms of the Interconnection Agreement.

**Inverter:** A machine, device or system that changes direct-current power to alternating-current power.

**Islanding:** A situation where electrical power remains in a portion of an EPS when the EPS has ceased providing power for whatever reason (emergency conditions, maintenance, etc.) to that portion of the EPS.

**Isolation Device:** A device used for isolating a circuit or equipment from a source of power. Also referred to as a "Disconnect Switch".

**ISO-NE:** The ISO, established in accordance with the NEPOOL Agreement and applicable FERC approvals, that is responsible for managing the bulk power generation and transmission systems in New England, or any successor organization approved by FERC.

**Line Section:** That section of the EPS connected or proposed to be connected to a Generating Facility, which portion is bounded by automatic sectionalizing devices or the end of the distribution line, as the case may be.

**Low Voltage Secondary Network Grid System:** A Network Secondary Distribution System typically with a nominal voltage of 208Y/120 volts in which the secondaries of distribution transformers are connected to a common network bus through Network Protectors. The distribution transformers, Network Protectors and network buses are located in multiple locations which are interconnected to form a grid.

**Material Modification:** (i) Any modification to an Interconnection Request submitted by a Generator that is reasonably expected to require significant additional study of the such Interconnection Request, substantially change the Interconnection design and/or have a

# ATTACHMENT XI

## GLOSSARY

material impact on the cost or timing of any studies or upgrades associated with any other Interconnection Request with a later queue priority date; (ii) a change to the design or operating characteristics of an existing Generating Facility that is interconnected with the EPS which may have an adverse effect on the reliability of the EPS; or (iii) a significant delay to the Commercial Operation Date or In-Service Date, the reason for which is unrelated to construction schedules or permitting.

**Metering Point:** The point at which the billing meter is connected (for meters that do not use instrument transformers). For meters that use instrument transformers, the point at which the instrument transformers are connected.

**NEC:** National Electric Code

**NEMA:** National Electrical Manufacturers Association.

**NERC:** North American Electric Reliability Corporation.

**NESC:** National Electric Safety Code.

**NEPOOL:** New England Power Pool.

**Net Metering:** The process, in accordance with applicable EDC rates, whereby the metered electrical energy production by a Generating Facility is subtracted from the metered EDC electrical energy sales to the Generator at such Generating Facility.

**Network Protector (and distribution power transformer):** An assembly comprising a circuit breaker and its complete control equipment for automatically disconnecting a transformer from a secondary network in response to predetermined electrical conditions on the primary feeder or transformer, and for connecting a transformer to a secondary network either through manual control or automatic control responsive to predetermined electrical conditions on the feeder and the secondary network.

**Network Secondary Distribution System:** A system of alternating current distribution in which the secondaries of the distribution transformers are connected to a common network for supplying power directly to consumer's services.

**Network Service:** Network service consists of two or more primary distribution feeders electrically connected together on the secondary (or low voltage) side to form a single power source for one or more customers.

**Non-Islanding:** Describes the ability of a Generating Facility to avoid unintentional islanding through the operation of its Interconnection equipment.

**NRTL:** An accredited by Occupational Safety and Health Administration (OSHA) Nationally Recognized Testing Laboratory, which has been approved to perform the certification testing required for Generating Facilities.

# **ATTACHMENT XI**

## **GLOSSARY**

**Operating Requirements:** Any operating and technical requirements that may be required by the Interconnecting EDC, including those set forth in the Interconnection Agreement (Exhibit A), or the Applicable Reliability Standards.

**Party:** Each of the Interconnecting EDC and the Generator, collectively the “**Parties.**”

**Point of Common Coupling (PCC):** The point where the Generating Facility’s local electric power system connects to the EPS

**Point of Delivery:** See Contract Path

**Point of Interconnection (POI):** The point at which the Generating Facility’s local electric power system connects to the EPS, such as the electric power revenue meter or premises service transformer.

**Point of Receipt:** See Contract Path

**Pre-certified, Pre-certification:** A specific generating and protective equipment system or systems that have been certified and documented as meeting applicable test requirements and standards relating to safety and reliability by a NRTL or, in the absence of such test requirements and standards, by tests and standards approved by the DPUC.

**Qualifying Facility:** A generation facility that has received certification as a Qualifying Facility from FERC in accordance with the Federal Power Act, as amended by the 1978 Public Utilities Regulatory Policies Act (“PURPA”)

**Recloser:** An automatic device like a circuit breaker, which can react to a short circuit and/or abnormal voltage by interrupting electrical flow and then automatically reconnecting a short time later.

**Scoping Meeting:** A scoping meeting is to discuss the Interconnection Request, review any existing studies relevant to the application, and discuss whether the EDC should perform a Feasibility Study or proceed directly to an Impact Study, or a Facility Study, or an Interconnection Agreement.

**Spot Network:** A small network typically with a nominal voltage of 480Y/277 volts in which the secondaries of two or more distribution transformers are connected to a common network bus through Network Protectors usually in a single location.

**Switchgear:** Components for switching, protecting, monitoring and controlling the EPS.

**Synchronous Generator:** A synchronous alternating-current machine which transforms mechanical power into electric power. (A synchronous machine is one in which the average speed of normal operation is exactly proportional to the frequency of the system to which it is connected.)

**System Impact Studies:** The Transmission System Impact Study and the Distribution System Impact Study.

# **ATTACHMENT XI**

## **GLOSSARY**

**Tariffs:** Rates and charges of the EDC for service as filed and approved by the DPUC.

**Technical Requirements:** Technical requirements for the Interconnection, attached hereto as Exhibit B.

**Telemetry:** The transmission of Generating Facility data using telecommunications techniques.

**Terms and Conditions:** The EDC's terms and conditions for providing electric delivery service as approved by the DPUC.

**Transfer Switch:** A switch designed so that it will disconnect the load from one power source and reconnect it to another source.

**Transmission System:** The Interconnecting EDC's facilities and equipment used to transmit electricity generally at voltage levels greater than 69 kV.

**Transmission System Impact Study:** An engineering study that evaluates the impact of the proposed Interconnection on the safety and reliability of the Transmission System without project modifications or system modifications, focusing on the adverse system impacts identified in the Feasibility Study and/or at the Scoping Meeting.

**UI:** The United Illuminating Company, the EDC that provides service to the principal cities of Bridgeport and New Haven and their surrounding municipalities: Ansonia, Derby, East Haven, Easton, Fairfield, Hamden, Milford, North Branford, North Haven, Orange, Shelton, Stratford, Trumbull, West Haven and Woodbridge.

**Utility Grade Relay:** A relay that is constructed to comply with, as a minimum, the most current version of the following standards; ANSI/ IEEE C37.90, ANSI/ IEEE C37.90.1, ANSI/ IEEE C37.90.2, ANSI/ IEEE C37.90.3 and; IEEE C37.98 Seismic Testing (fragility) of Protective and Auxiliary Relays, ANSI C37.2 Electric Power System Device Function Numbers, IEC 255-21-1 Vibration, IEC 255-22-2 Electrostatic Discharge, and IEC 255-5 Insulation (Impulse Voltage Withstand).

**VAR:** Volt-Amps Reactive