Eversource Energy
The United Illuminating Company
Docket No. 03-01-15RE04

Guidelines for the Interconnection of Residential Single Phase Certified Inverter-Based Generating Facilities of 20 kW (ac) or Less

April 8, 2019

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The Electric Distribution Companies ("EDCs") of Connecticut have a responsibility to the public and to EDC customers to ensure that all generator interconnections to the Electric Power System ("EPS") are safe and do not adversely impact the reliability of the EPS. These Guidelines include the application form, procedure, terms and conditions and technical requirements to ensure an expedited and successful interconnection process.

These guidelines are only for certified inverter based residential single phase interconnections at generating facilities with an aggregate nameplate rating of 20kW (ac) or less. All others should follow the Guidelines for Generator Interconnection Fast Track and Study Process.

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1 General Considerations

1.1 This document provides guidance for projects that fall under the State of Connecticut jurisdiction. From time to time amendments to existing standards and regulations are implemented that could require the implementation of added functionalities on inverters that are now generally associated with advanced inverter technology. It is important to note that compliance with other authorities having jurisdiction may result in additional requirements not covered in this document (i.e. NERC, ISO-NE, Voltage and/or frequency Ride-Through etc.).

1.2 In order to accommodate higher levels of distributed generation penetration and to reduce the need for EPS upgrades, the EDCs may recommend the use of inverters with added functionalities such as volt-watt and volt-var control that are now associated with advanced inverters including communication and metering capabilities.

1.3 The Interconnection Customers ("Customers") shall be fully responsible for ensuring ongoing compliance or causing ongoing compliance with these Guidelines.

1.4 When interconnecting Generating Facilities to the EPS, it is important to minimize the potential hazard to life and property. The interconnection of a new Generating Facility to the EPS must not degrade any of the existing EDC protection and control schemes nor lower the existing levels of safety and reliability to other customers.

1.5 Neither the EDC nor the Customer should depend on the other for the protection of their respective equipment. The EDC's minimum protection requirements are designed and intended to protect the EDC power systems alone.

1.6 The Customer is responsible for the costs of the EDC's installation of any protective equipment necessary to ensure safe and reliable operation of both EPS and the Customer's Generating facilities. The need for protective equipment will vary, depending on the Generating Facility's location within an EDC circuit.

1.7 The Customer is responsible for obtaining any and all permits required for the construction and operation of the Generating Facility.

1.8 All Customers will be treated fairly and uniformly, on a first come first serve basis, without preferential treatment and in a non-discriminatory manner.

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1.9 The EDC cannot recommend manufacturers, vendors or technical experts to assist Customers.

1.10 If the Customer has questions or needs clarification about the process or technical requirements, the Customer should consult the appropriate EDC contacts, posted on the generator interconnection website of the appropriate EDC.

1.11 If the EDC determines that the proposed generator will be interconnected to an Area Network, then the Customer may be required to file an application under the, Guidelines for Generator Interconnection Fast Track and Study Process, unless waived by the EDC.

1.12 Definitions and acronyms used in these Guidelines can be found in the "Definitions" section, in Appendix A.

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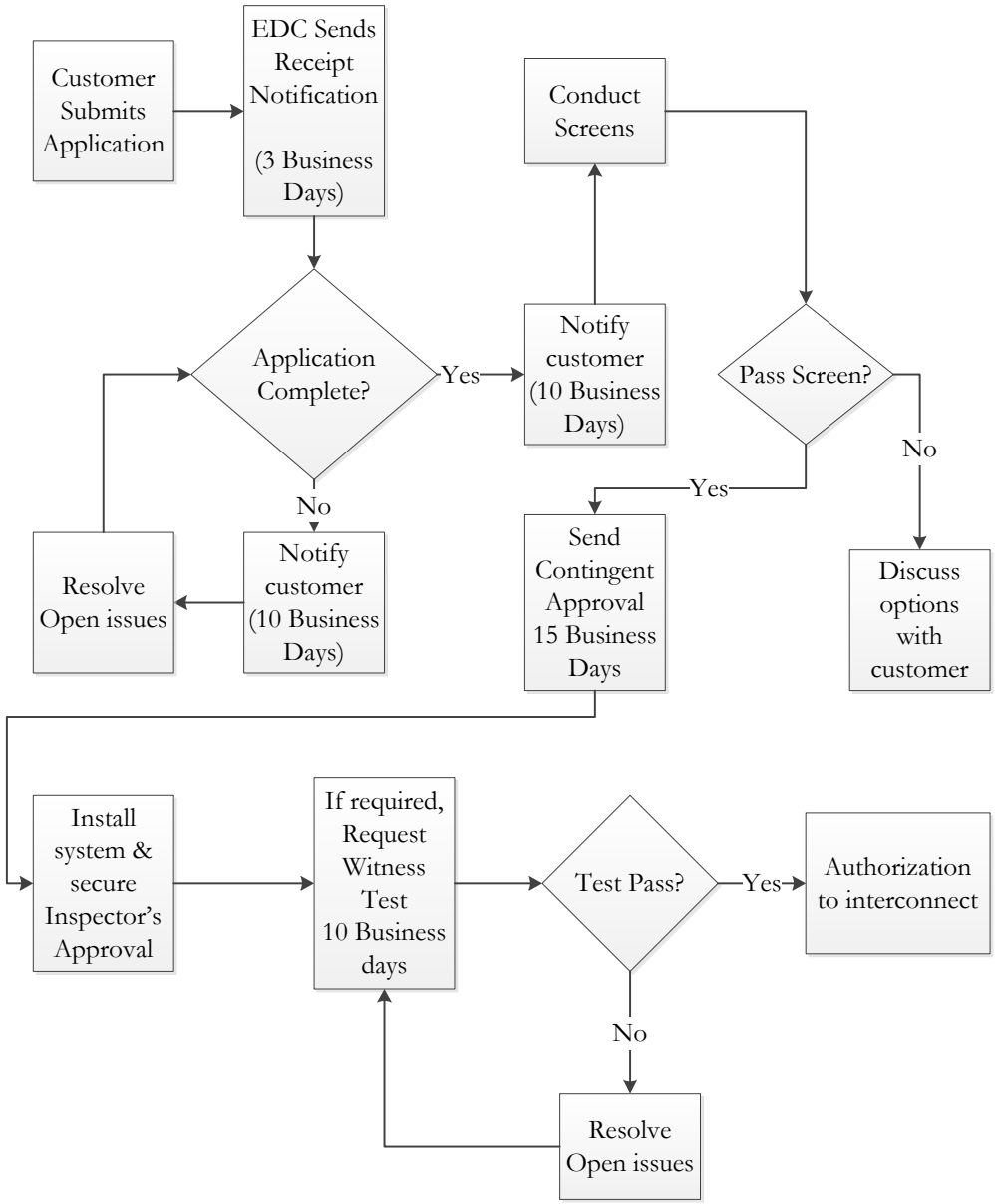
2 Procedure

The following steps outline the Interconnection process.



Payment Schedule

Description	Application Fee
Less or equal to 20 kW	$200.00

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2.1 The Customer completes the Interconnection Application ("Application"), and submits it to the EDC with payment.

2.2 The EDC acknowledges to the Customer, receipt of the Application within three (3) Business Days of receipt of the Application.

2.3 The EDC evaluates the Application for completeness and notifies the Customer, within ten (10) Business Days of acknowledgment of receipt, whether the Application is complete. If the Application is not complete, the EDC will advise the Customer on what material is missing and/or incomplete. At the time the EDC informs the Customer that the Application is missing/incomplete, the EDC will place the subject Application on hold in the interconnection queue. Once the Customer provides all required information, the Application process will continue. However, if the Customer does not provide the required documentation within fifteen (15) Business Days of the EDC's request, the EDC may be deem the Application withdrawn.

2.4 After receipt of a completed Application and the EDC verifies that the Certified Inverter-Based Generating Facility can be interconnected safely and reliably, the EDC facilitator will respond with a Contingent Approval to interconnect notification. The EDC will make a good faith effort within fifteen (15) Business Days of determination of a completed Application to either respond with a Contingent Approval to interconnect or notify them of its findings.

2.5 A Certified Inverter Based Generating Facility Application is approved for Interconnection to the EDC's distribution system if all of the screens below are met:

2.5.1 For generating sources (e.g. solar or wind), the aggregate generating capacity does not exceed the nameplate rating of the service transformer for those Generating Facilities directly connected to the distribution transformer.

2.5.2 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 generator, will not exceed 20 kVA.

2.5.3 If the proposed Generating Facility is to be interconnected using a 120 Volt configuration, its addition will not exceed 15% of the nameplate rating of the service transformer.

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2.5.4 The expected maximum change in voltage anywhere along the circuit due to the full output of the aggregate generation at corresponding light load periods does not exceed the difference between the exemption to the upper voltage variation established by the Public Utilities Regulatory Authority ("PURA") by way of a Decision, dated March 6, 2019, in Docket No. 03-01-15RE04, or the upper voltage variation bound established in Conn. Agencies Regs. § 16-11-115(a) whichever is greater (currently maximum of 5% of standard voltage) and the expected primary voltage of the circuit at corresponding light load periods incorporating the bandwidth of voltage regulating equipment.

2.6 When Certified Inverter Based Generating Facility applications fail one or more of the above screens, the Customer will be provided options to allow them to comply with all screens or will be directed to the Fast Track & Study Interconnection Guidelines process.

2.7 After installation of the Generating Facility, the Municipal Electrical Inspector's approval must be secured. Within ten (10) Business Days from the date the EDC receives the Municipal Electrical Inspector's approval, the EDC may request a Commissioning/Witness test, and if necessary, may schedule appropriate metering replacement.

2.8 There will be no charge for EDC personnel to witness the Commissioning Test of Certified Inverter Based Generating Facility, provided that the testing is completed in one visit. If the testing cannot be completed or must be repeated, because of a problem on the first visit, the EDC will charge the Customer for EDC personnel to witness the Commissioning Test on any subsequent visit(s).

2.9 The EDC will not perform, aid in performance of, or provide equipment for the Commissioning Test.

2.10 The EDC may inspect the Generating Facility to ensure that all equipment has been appropriately installed.

2.11 Commissioning Tests of the Customer's installed equipment must be performed pursuant to applicable codes, standards and equipment manufacturers' recommendations. The Customer may be required to provide a written Commissioning Test procedure for EDC approval, prior to the Commissioning Test.

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2.12 If the EDC determines to inspect the Generating Facility, then such inspection must occur prior to the interconnection of the Generating Facility. The EDC will endeavor to conduct the inspection within ten (10) Business Days after receipt of the Electrical Inspector's approval, and schedule it at a time agreeable to the Parties.

2.13 If the EDC does not require an inspection of the Generating Facility, the EDC shall provide written notice to the Customer and the witnessing of the Commissioning Test is deemed waived (unless the Parties agree otherwise).

2.14 If a Commissioning Test is required, the EDC shall provide a written statement that the Generating Facility has passed inspection or shall notify the Customer of the reason for failure.

2.15 The Customer cannot operate the Generating Facility in parallel until approval to do so has been provided by the EDC.

2.16 Codes and Standards applicable to the Application can be found in Appendix B.

2.17 For additional technical requirement refer to Section 4 of this document.

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3 Terms and Conditions

3.1 Reasonable Efforts

The applicable EDC shall make reasonable efforts to meet all timeframes provided in these procedures unless the EDC and the Customer agree to a different schedule. If the EDC fails to meet a deadline provided herein, it shall, within three (3) Business Days of receipt of the request of a status inquiry, (a) respond to the Customer, (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.

3.2 Disputes

The Parties shall agree to attempt to resolve all disputes promptly, equitably and in a good faith manner. If Parties are unable to informally resolve their dispute, the following formal three step dispute resolution process must be followed:

3.2.1 Negotiation: Upon receipt of written request for formal dispute resolution, the Parties shall negotiate in good faith for ten (10) Business Days in an attempt to resolve the disputed issues. The negotiation will take place between appropriate representatives of each Party. An appropriate representative is a vice-president or a member of senior management with sufficient authority to resolve the dispute.

3.2.2 Mediation: If the Parties have not resolved the dispute through negotiation, the Parties agree to attempt to resolve their dispute through non-binding mediation. The Parties shall agree to a mutually agreeable mediation process and mediator. Each party will select a mediator within five (5) Business Days of the end of the negotiation period and the two selected mediators will attempt to, within five (5) Business Days, select a third, mutually agreeable, mediator. The Parties shall share the cost of mediation equally. Once the three mediators are selected and the mediation commences, the Parties agree to engage in mediation in good faith for a period of not less than 30 days.

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3.2.3 PURA Dispute Resolution: If the Parties cannot resolve their dispute through negotiation or mediation within 30 days, either Party may commence an action at PURA for resolution of the dispute. All timeframes in this process and the Dispute Resolution Process itself may be modified by mutual written agreement of the Parties.

3.3 Confidentiality

The EDC shall maintain the confidentiality of all information so designated by the Customer if clearly marked and labeled "Confidential" except as otherwise required by system operators, applicable laws and regulations, and regulatory and judicial requests or requirements. In the event a third party requests that the EDC produce confidential information, the EDC shall provide advance notice to the Customer, if possible, to give the Customer an opportunity to seek protective treatment of such information. If such information is requested or required by PURA, the EDC will seek protective treatment of such information. Confidential information does not include information previously in the public domain or that becomes generally available to the public without violation of these Guidelines.

3.4 Comparability

The EDC shall process and analyze all Interconnection Applications in a timely manner as set forth in this document. The EDC shall use the same reasonable efforts in processing and analyzing Interconnection Applications from all Customers.

3.5 Record Retention

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

3.6 Acceptance of Guideline Requirements

The Customer shall sign and return the Application which indicates the Customer's acceptance of the terms, conditions, and requirements included in the Guidelines. After the EDC receives the Application signed by the Customer acknowledging acceptance of all terms and conditions contained

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in the Guidelines, the Interconnection of the Generating Facility shall proceed under the provisions of the Guidelines.

3.7 Capacity of Generating Facility

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

3.7.1 if the Application pertains to an increase in capacity for an existing Generating Facility, the Application shall be evaluated on the basis of the new total capacity of the Generating Facility;

3.7.2 if the Application is for a Generating Facility that includes multiple energy production devices at a site for which the Customer seeks a single Point of Interconnection, the Interconnection Application shall be evaluated on the basis of the aggregate capacity of the multiple devices; and,

3.7.3 the Application shall be evaluated using the maximum nameplate rated capacity of the Generating Facility in kW AC.

3.8 Construction of the Facility

It is recommended that the Customer construct the Generating Facility after the EDC approves the Application for installation and returns the "Contingent Approval to Interconnect" to the Customer.

3.9 Interconnection and Operation

The Customer may operate the Generating Facility and Interconnect with the EDC electric system in accordance with these Guidelines once all of the following have occurred:

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3.9.1 Upon completing construction, the Generating Facility has been inspected or otherwise certified by the appropriate local electrical wiring inspector with jurisdiction;

3.9.2 The EDC has either:

3.9.2.1 completed its inspection, and witnessed the Commissioning Test of the Generating Facility to ensure that all equipment has been appropriately installed and that all electrical connections have been made in accordance with applicable codes and standards provided to the Generating Facility with an "Approval to Energize" document; or

3.9.2.2 the EDC waived the right to inspect the Generating Facility by providing written notice of its waiver to the Customer;

3.9.3 The EDC has the right to disconnect the Generating Facility in the event that, in its sole discretion, it believes that the Generating Facility is not operating in a safe and reliable manner.

3.10 Safe Operations and Maintenance

The Customer shall be fully responsible to operate, maintain, and repair the Generating Facility or to cause the operation, maintenance and repair of the Generating Facility as required to ensure that it complies at all times with these Guidelines and the interconnection standards to which it has been certified.

3.11 Access

The EDC shall have access to the AC Isolation Device (if an AC Isolation Device is required by the EDC) and metering equipment of the Generating Facility at all times. The EDC shall provide reasonable notice to the Customer when possible prior to using its right of access. The Customer is solely responsible for obtaining any and all permits and easements necessary to allow EDC to gain access to the AC Isolation Device.

3.12 Disconnection

The EDC may temporarily disconnect the Certified Inverter-Based Generating Facility upon the following conditions:

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3.12.1 for scheduled outages upon reasonable notice;

3.12.2 for unscheduled outages or when the EDC believes that there is an emergency situation which includes the Generating Facility adversely affecting the EPS, any equipment owned or operated by the EDC, or other customers of the EDC; or

3.12.3 if the Generating Facility does not operate in the manner consistent with these Guidelines.

3.12.4 The EDC shall inform the Customer in advance of any scheduled disconnection, or within a reasonable time after an unscheduled disconnection.

3.13 Indemnification

Each Party shall at all times indemnify, defend, and hold harmless the other Party, its current or former affiliates, agents, servants, officers, directors, employees, managers, contractors, shareholders, principals, predecessors, partners, representatives, attorneys, insurers, reinsurers, sureties, heirs, executors, administrators, successors and assigns from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the indemnifying Party's actions or inactions under this agreement, except in cases of negligence or intentional wrongdoing by the indemnified Party.

3.14 Insurance.

Each Customer, the Site Owner and the Generator ***shall be solely responsible*** for independently maintaining adequate and appropriate liability insurance. The EDC does not require the Customer, Site Owner and the Generator to obtain insurance. However, the Customer shall (and shall cause the Site Owner and Generator to) fully release and hold the EDC harmless with respect to any failure of Customer, Site Owner or Generator to adequately and appropriately maintain such insurance. In no event shall the EDC be liable whatsoever for any damages (including to person or property) in connection with the Interconnection that is (or would have been) covered by such insurance. The EDC's sole liability in

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connection with the Interconnection is set forth in Section 3.15 of these Guidelines.

3.15 Limitation of Liability

Each Party's liability to the other Party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of its obligations pursuant to these Guidelines, shall be limited to the amount of direct damage actually incurred. In no event shall either party be liable to the other party for any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever.

3.16 Termination

The Interconnection may be terminated under the following conditions:

3.16.1 by the Customer with 30 days advance written notice to the EDC;

3.16.2 by the EDC, if the Generating Facility fails to operate for any consecutive 12 month period; or,

3.16.3 by the EDC if the Customer fails to remedy or cause to have remedied a violation of these Guidelines within 30 days of receiving written notice of said violation from the EDC.

3.17 Survival Rights

The provisions within these Guidelines shall continue in effect after termination to the extent necessary to allow or require any Party to fulfill rights or obligations that arose under the Guidelines.

3.18 Assignment/Transfer of Ownership of the Facility

The Customer shall notify the EDC of its intent to transfer the Generating Facility no less than 30 days prior to the transfer, or, within five (5) Business Days of the formation of the intent to transfer if the intent forms less than 30 days before transfer. These Guidelines shall survive the transfer of

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ownership of the Generating Facility to a new owner only provided that the new owner agrees in writing to comply with the terms of the Guidelines and so notifies the EDC. Absent acceptance by the new owner, within 30 days of the transfer, the Interconnection is no longer authorized and the EDC reserves the right to terminate the Interconnection at its own discretion. The EDC will provide the new owner with notice of its intent to terminate at least 30 days in advance of said termination.

3.19 Withdrawal

The Customer may withdraw its Interconnection Application at any time by written notice of such withdrawal to the EDC.

3.19.1 In addition, if the Customer fails to adhere to all requirements of these Guidelines, the EDC shall deem the Interconnection Application withdrawn and shall provide written notice to the Customer of the deemed withdrawal and an explanation of the reasons for such deemed withdrawal.

3.19.2 Upon receipt of such written notice, if the Customer wishes to dispute the withdrawal notice, the Customer shall have fifteen (15) Business Days to respond with information or actions that cure the deficiency or to notify the EDC of its intent to pursue dispute resolution in accordance with Section 3.2.

3.20 Withdrawal of an Interconnection Application shall result in the loss of queue position assigned to such Interconnection Application.

3.21 If a Customer disputes such withdrawal and loss of queue position, then the Customer's Application shall be removed from the queue until such time that the outcome of the dispute restores its queue position.

3.22 A Customer who fails to pay all monies due shall not be eligible to submit subsequent Interconnection Applications

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4 Technical Requirements

4.1 All Interconnection Applications must provide a scheme which ensures protection against Islanding. All exporting entities, including inadvertent export and all net metering projects, interconnecting to the EPS with existing synchronous generators, on the same Distribution Feeder, will be reviewed on a case-by-case basis to ensure there is adequate protection against Islanding. If screening criteria are not met, the project will be reviewed using the Fast Track/Study Process.

4.2 All steady-state and transient operating limits for voltage, flicker voltage, frequency, harmonic contents, etc. must comply with the latest versions of IEEE1547, the NEC and other relevant IEEE standards and all other applicable local, state, or federal regulations.

4.3 Subsequent to the occurrence of events which causes the inverter to trip, the utility line voltage must remain stable in voltage and frequency for a minimum of five (5) minutes prior to permitting the Inverter to conduct again.

4.4 Equipment and Material:

4.4.1 Approved Inverter(s): An Inverter is considered approved if it is certified to the latest version of UL 1741 and compliant with the authorities having jurisdiction. Proof of certification may be required by EDC.

4.4.2 AC Isolation Device: Unless otherwise approved in writing by the EDC, the Customer is required to provide a manual AC Isolation Device, to be located outside and accessible to the EDC for Generating Facilities larger than 1 kW.

4.4.3 The AC Isolation Device must be appropriately labeled "Generator Isolation Device."

4.4.4 The AC Isolation Device should be visible and in close proximity (10 feet or less) to the main utility meter panel, unless otherwise approved in writing by the EDC.

4.4.5 The switch shall be gang operated, have a visible break when open, be rated to interrupt the maximum generator output and be capable of being locked open by EDC personnel.

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4.5 Revenue Metering Requirements:
In the event metering replacement or installation is required, the meter will be replaced or installed by the EDC in compliance with the applicable EDC's Rates and Tariffs, Service Requirement and Terms and Conditions.

4.6 Generation Metering Requirement: Additional generating metering may be required by the EDC or to comply with applicable program requirements. Such requirements are not part of these Guidelines.

4.7 Emergency generators and systems with energy storage devices in closed transition configuration must comply with these Guidelines.

4.8 Inverter voltage trip settings

Shall Trip Function	Required Settings	
	Voltage (p.u. of nominal voltage)	Clearing Time(s)
OV2	1.20	0.16
OV1	1.10	2.0
UV1	0.88	2.0
UV2	0.50	1.1

4.9 Inverter frequency trip settings

Shall Trip Function	Required Settings	
	Frequency (Hz)	Clearing Time(s)
OF2	62.0	0.16
OF1	61.2	300.0
UF1	58.5	300.0
UF2	56.5	0.16

4.10 Inverter Voltage Ride-through Capability and Operational Requirements

Voltage Range (p.u.)	Operating Mode/ Response	Minimum Ride-through Time(s) (design criteria)	Maximum Response Time(s) (design criteria)
V > 1.20	Cease to Energize	N/A	0.16
1.175<V≤1.20	Permissive Operation	0.2	N/A
1.15<V≤1.175	Permissive Operation	0.5	N/A
1.10<V≤1.15	Permissive Operation	1	N/A
0.88≤V≤1.10	Continuous Operation	infinite	N/A
0.65≤V<0.88	Mandatory Operation	Linear slope of 8.7 s/1 p.u. voltage starting at 3 s @ 0.65 p.u.:	N/A

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		$T_{VRT} = 3\ s + \frac{8.7}{1\ p.u.}\ (V - 0.65\ p.u.)$	

0.45≤V<0.65	Permissive Operation[ab]	0.32	N/A
0.30≤V<0.45	Permissive Operation[b]	0.16	N/A
V<0.30	Cease to Energize	N/A	0.16

4.11 Inverter frequency ride-thru capability

Frequency Range (Hz)	Operating Mode	Minimum Time(s) (Design Criteria)
f > 62.0	No ride-through requirements apply to this range	
61.2<f≤61.8	Mandatory Operation	299
58.8≤f≤61.2	Continuous Operation	Infinite
57.0≤f≤58.8	Mandatory Operation	299
f<57.0	No ride-through requirements apply to this range	

4.12 Grid support utility interactive inverter function status

Function	Default Activation State
SPF, Specified Power Factor	Off
Q(V), Volt-Var Function with Watt or Var Priority	Off Default value: 2% of maximum current output per second
SS, Soft-Start Ramp Rate	On
FW, Freq-Watt Function OFF	Off

[a] In the Permissive Operation region above 0.5 p.u., inverters shall ride-through in Mandatory Operation mode, and
[b] In the Permissive Operation region below 0.5 p.u., inverters shall ride-through in Mandatory Cessation mode with a maximum response time of 0.083 seconds.

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1) Instructions to File an Application

Refer to web page link below

Eversource: https://www.eversource.com/content/ct-c/about/about-us/doing-business-with-us/builders-contractors/interconnections

UI: https://www.uinet.com

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INTERCONNECTION APPLICATION

Interconnection Customer (EDC Customer of Record)

Customer of Record: _____

_____

Contact Person: _____

Facility Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Account Number: _____

Meter Number: _____

***Authorized Agent**

Company Name: _____

Contact: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

*If Authorized Agent fields are entered, please complete the Agent Authorization Form.

Ownership Information (Owner of the Generating facility):

Company Name: _____

Contact: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

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APPLICATION IS FOR:

Is this a new service? Yes ___No ___
New Generating Facility? Yes ___No ___
If No, please describe: _____
_____

Is the Interconnection Request for:

Net Metering? Yes ___No ___
If No, please describe: _____

Nameplate Rating (Nominal):

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

Single Phase _____ Three Phase_____

Battery Backup? Yes _____ No _____

Inverter Manufacturer	Model	Quantity	New or Existing
1.			
2.			
3.			

Is the equipment UL1741 SA Listed? Yes____ No ____

Prime Mover:	**Energy Source:**
☐ Photovoltaic ☐ Reciprocating Engine	☐ Solar ☐ Wind ☐ Hydro
☐ Fuel Cell ☐ Turbine	☐ Diesel ☐ Natural Gas ☐ Fuel Oil
☐ Other _____	☐ Other _____

Interconnection Customer Signature

I hereby certify that, to the best of my knowledge, the information provided in this Application is true. I agree and accept all terms and conditions for Interconnection and agree to abide by the "Guidelines for Interconnection of Single Phase Certified Inverter-Based Generating Facilities of 20 kW (AC) or Less" to interconnect a Certified Inverter-Based Generating Facility and return the Certificate of Completion when the Certified Inverter-Based Generating Facility has been installed

Signed: _____ Date: _____

Print Name: _____

NOTE: Facsimile or electronic (e.g., .pdf) execution and delivery of this Interconnection Application is legal, valid and binding for all purposes.

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Agent Authorization Form

1. I am the customer of record of The United Illuminating Company / Eversource Energy ("EDC") receiving electric transmission and distribution service at the following location _____ ("Location").

2. I submitted a request for interconnection on _____with respect to the interconnection of a generating facility at the Location (the "Interconnection").

3. I hereby appoint the following party as my authorized agent to act on my behalf with respect to all aspects of the Interconnection and Interconnection process:

Name of Entity:_____
Name of Individual:_____
Address: _____
Phone Number: _____
Email: _____
Fax: _____

4. I understand and agree that in naming the above party as my authorized agent for all aspects of the Interconnection, (i) EDC shall recognize such party as the primary point of contact for the Interconnection, (ii) such party shall receive all written and oral communication from EDC regarding the Interconnection, and (iii) such party may act and EDC shall take direction, without consulting me, regarding all matters related to the Interconnection, including but not limited to signing any and all documents required in connection with the Interconnection. I further understand and agree that the appointment of agent may only be revoked upon the express written notice by me to EDC at the following address {EDC Name and Address} and shall continue until EDC receives written notice of any such revocation by me.

5. I shall not hold EDC liable and I hereby release, indemnify and hold EDC harmless from and against any and all claims, liabilities, demands, causes of action or damages of any nature whatsoever against or incurred by EDC in connection with EDC's reliance on the consents and authorizations reflected herein, including but not limited to EDC's compliance with any instructions provided to it by my agent or any actions taken by my agent or EDC pursuant to such consents and authorizations.

_____
Signature of Customer
Print Name:
Date:

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Appendix A: Definitions

Area Network: See Low Voltage Secondary Network Grid System

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

Capacity: The maximum output, commonly expressed in kilowatts (kW-AC) or megawatts (MW-AC), that generating equipment can supply to system load, adjusted for ambient conditions.

Cease to Energize: Cessation of active power delivery under steady state and transient conditions and limitation of reactive power exchange.

Certified Inverter-Based Generating Facility: Specific Generating Facility, 20kW and less and protective equipment system or systems that are documented as meeting applicable test requirements and standards relating to safety and reliability by a nationally recognized testing laboratory. An inverter is considered approved if it is certified to UL-1741 and passed the required tests without failure to comply with IEEE C62.41 and C62.45. Proof of certification under UL-1741 and IEEE C62.41, and C62.45 shall be required.

Commissioning Test: Commissioning tests shall be conducted after the interconnection system is installed and is ready for operation. An individual qualified in testing protective equipment (professional engineer, factory certified technician, or licensed electrician with experience in testing protective equipment) must perform or directly supervise Commissioning tests. The EDC has the right to witness the Commissioning tests as described below, or to require written certification, by the equipment owner describing which tests were performed and their results. All commissioning tests shall be performed based on written procedures. Commissioning procedures are typically provided by equipment manufacturers or system integrators and approved by the equipment owner and the EDC. Once completed and accepted, the Commissioning tests will not have to be repeated unless set points are changed.

Company (EDC) Facilitator: The EDC's designated single point of contact for customer inquiries related to Facilities. Interested parties can obtain a copy of the Guidelines, interconnection applications and any forms that are needed to request an interconnection from the EDC Facilitator.

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Continuous Operation: Exchange of current between the DER and an EPS within prescribed behavior while connected to the utility's distribution system and while the applicable voltage and the system frequency is within specified parameters.

Customer: The person, organization or entity applying to interconnect a Generating Facility to the EPS.

Disconnect: To isolate a circuit or equipment from a source of power.

Electric Distribution Company (**"EDC")**: The Connecticut Light and Power Company, doing business as Eversource Energy or The United Illuminating Company, as appropriate.

Electric Power System (EPS): All electrical wires, equipment, and other facilities owned or provided by the EDC that are normally operated at voltages below 69kV to provide distribution service to customers.

Eversource Energy: Eversource Energy provides service to all of Connecticut except the towns supplied by UI, and the towns of Wallingford, Norwich, Bozrah and parts of Groton, Norwalk, and Lebanon.

Generator: The owner/operator of the Generating Facility.

Generating Facility: Any certified inverter-based device producing electrical energy, i.e. rotating generators, wind, steam turbines, internal combustion engines, hydraulic turbines, solar, fuel cells, etc., including energy storage technologies. A system for the generation of electricity that is located near the point where the electricity will be used or is in a location that will support the functioning of the electric power distribution grid.

Guidelines: The "Guidelines for Certified Inverter Based Generating Facility, 20kW or less", which includes Attachments, that describe the protocols and procedures for interconnecting to the Electric Power System.

IEEE: Institute of Electrical and Electronics Engineers.

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 or by that date

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Interconnection: The physical connection of a Generating Facility to the Electric Power System so that Parallel Operation can occur.

Interconnection Application ("Application"): The document to be completed by the Customer and sent to the EDC prior to any Interconnection. The Interconnection Application is in Section 5 of the Guidelines. By signing the Interconnection Application, the Customer acknowledges acceptance of all terms and conditions of the Guidelines.

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 (AC): A readily accessible, lockable, visible-break mechanical device used for isolating a circuit or equipment from a source of power.

Low Voltage Secondary Network Grid System (Area Network): 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.

Mandatory Operation: Required continuance of active current and reactive current exchange of DER with utility's distribution voltage or frequency having magnitude and duration severity within defined limits.

Momentary Cessation: Temporarily cease to energize the utility's distribution system while connected to the utility's distribution system, in response to a disturbance of the applicable voltages or system frequency, with the capability of immediate restore output of operation when the applicable voltages and the system frequency return to within defined ranges.

Municipal Electrical Inspector: Local town or city official in which the Interconnection is proposed to take place who is responsible for approving the Interconnection.

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Nationally Recognized Testing Laboratory (NRTL): An OSHA approved laboratory which performs the certification testing required for Generating Facilities.

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 customer at the Generating Facility.

OSHA: Occupational Safety and Health Administration

Parallel Operation: A Generating Facility, connected electrically to the EDC EPS, in which the potential exists for electricity to flow back from the Generating Facility to the EPS. The EDC will grant operation to parallel (energize) only when the products of the interconnection review conclude that the Generating Facility is in compliance with all EDC requirements.

Parties: Those who are undertaking and agreeing to these Guidelines and the interconnection process, includes Customer and the EDC.

Permissive Operation: Operating mode where the DER performs ride-through either in mandatory operation or in momentary cessation, in response to a disturbance of the applicable voltages or system frequency.

PURA: Public Utilities Regulatory Authority

Point of Interconnection: The point where the Generating Facility is electrically connected to the EDC EPS.

Site Owner: a person who as legal ownership of a property and has the right to use it and has full control over it unless prevented by some agreement.

The United Illuminating Company ("UI"). UI's service area includes 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.

UL1741: Underwriters Laboratories Standard 1741 "Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources" as follows:

> *Underwriters Laboratories Standard #1741* This standard addresses the electrical interconnection design of various forms of generating equipment. Manufacturers must submit their equipment to a Nationally Recognized Testing Laboratory ("NRTL"), recognized by OSHA, that verifies compliance

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with UL1741. This "listing" is then marked on the equipment and supporting documentation. The Customer is responsible for ensuring compliance with all additional inverter base requirements per the UL1741, and with IEEE C62.41 and C62.45.

UL1741SA: Underwriters Laboratories Standard 1741 Supplement A. addresses the testing and certification of advanced inverters for grid support functions.

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Appendix B: Codes and Standards

Generating Facilities shall be in compliance with the latest version of IEEE 1547 series and UL 1741/UL 1741SA standards at the time of installation and commissioning.

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