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 50kW (ac) or Less

~~April 11, 2025~~July 1,2026

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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 50kW (ac) or less. All others should follow the Guidelines for Generator Interconnection Fast Track and Study Process.

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 The scope of these guidelines is limited to the technical review and possible impact the proposed generator will have on the distribution system. All other aspects of the proposed generator project (i.e. metering, tariff, etc.) will be evaluated based on current applicable EDC requirements, and may occur at times after Contingent Approval is provided for the project design.

1.3 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.

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

1.5 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, also known as Distributed Energy Resource (DER), 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.

1.6 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.

1.7 The Applicant or Customer is responsible for the costs of the EDC's

upgrades required to ensure safe and reliable interconnection of the Customer's Generating facilities, unless upgrades are already identified as required due to a pre-existing condition, or if otherwise allowed by PURA.

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

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

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

1.11 It is the responsibility of the Applicant and its system installer to assure compliance with all applicable electrical codes and specific utility standards and practices as they may change from time to time. This includes the proper selection, location and labeling of metering receptacles and other equipment such as disconnect switches.

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

1.13 Applicants have the responsibility at the point of sale to properly inform Customers of the applicable state-wide tariffs and guidelines, the interconnection process, system design and configuration options. During the interconnection process Applicants should provide regular and clear communication to Customers on the status of their applications.

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

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

1.16 Although these Guidelines are technology agnostic to allow for the

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integration of emerging technologies, it is recognized that Distributed Energy Resource (DER) technologies are unique and may require additional technical requirements. Such technologies may include, but are not limited to, photovoltaic (PV), wind, fuel cells, battery energy storage systems (BESS), and bidirectional electric vehicle charging systems. All DER technologies shall be implemented in a manner that ensures safe and reliable operation consistent with the intent of these Guidelines and applicable technical requirements. Refer to Exhibit B for additional technical requirements. All DER operating in parallel with the distribution system including grid tied bidirectional equipment will be required to submit an interconnection application. If the bidirectional charger is integral to the vehicle itself, the vehicle will not be permitted to export to the grid, or offset a load connected in parallel with a grid source of power at any location other than the point of interconnection with Municipal approval, a meter change when required, and the Permission to Operate documentation. Any material modifications to, or replacement of, bidirectional charging equipment will be subject to the requirements as otherwise referenced within these Guidelines.

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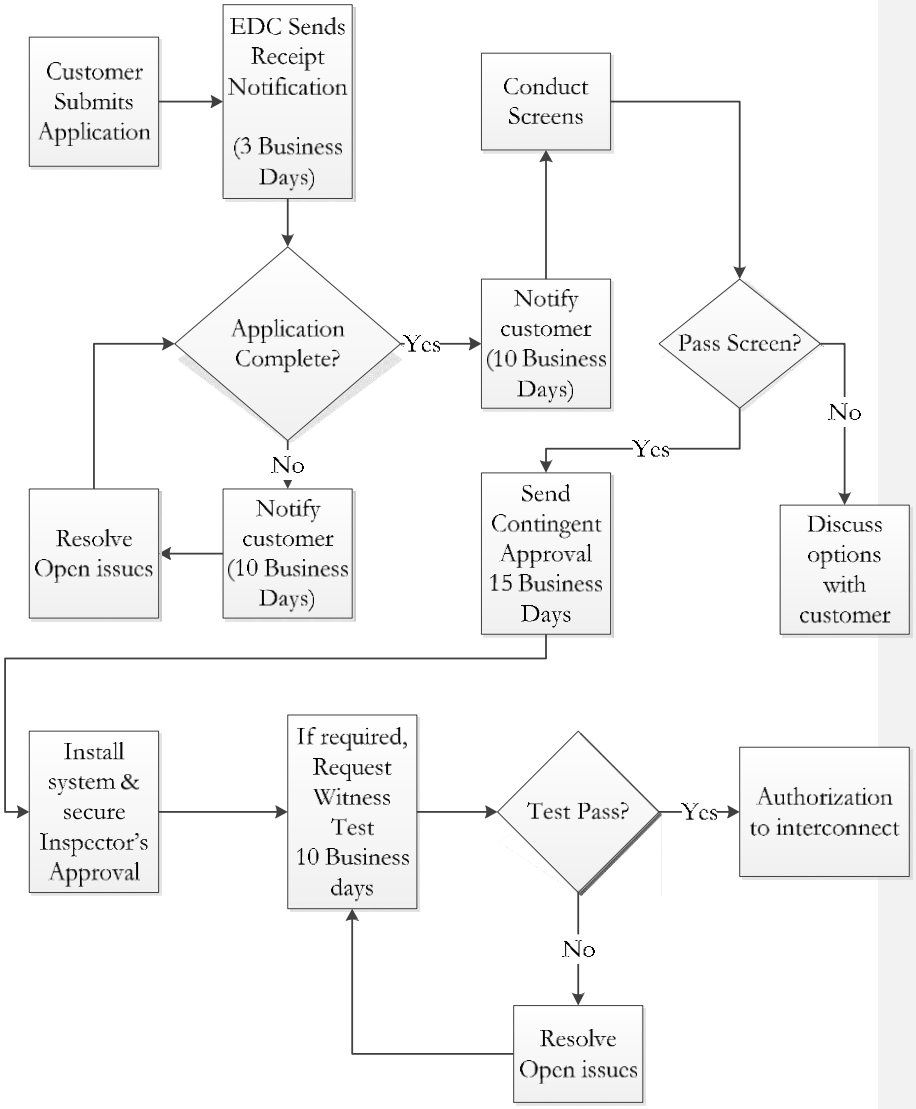
2 Procedure

The following steps outline the Interconnection process.



Payment Schedule

Description	Application Fee
Less or equal to 50 kW	$200.00

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

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

2.3 The EDC evaluates the Application for completeness and accuracy consistent with the applicant-selected tariff-provided option and notifies the Applicant 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 Applicant on what material is missing and/or incomplete. At the time the EDC informs the Applicant that the Application is missing/incomplete, the EDC will place the subject Application on hold in the interconnection queue. Once the Applicant provides all required information, the Application can reenter the queue and the process will continue. Following review and approval for tariff compliance, the application will be reviewed for interconnection completeness, technically screened and if passed, the Applicant and Customer will be provided with a Contingent Approval notification within 15 business days of the approval for tariff compliance.

2.4 If the Applicant does not provide the required documentation within fifteen (15) Business Days of the EDC's request, the EDC may be deem the Application withdrawn and the queue position lost.

2.5 Applicants will make a good faith effort to submit complete, correct and consistent applications, the first time. Defective Applications that require reprocessing and rework extend the timeline for all applications being processed. Applicants found to be repeatedly submitting applications that require additional rework, or applicants requesting frequent changes to applications that were previously submitted will be notified and required to take immediate corrective actions to prevent reoccurrence.

2.6 If the application does not pass the technical screens, the applicant will be notified of the findings along with options, it any, in lieu of receiving Contingent Approval notification.

2.7 The EDCs will make a good faith effort to further streamline and automate technical screening and contingent approvals of certain types and sizes of proposed DER systems that are determined by the EDC to

be reasonably qualified to receive such treatment.

2.8 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:

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

2.8.2 If the proposed Generating Facility is to be interconnected on single-phase shared secondary, the aggregate generation nameplate capacity on the shared secondary, including the proposed generator, will not exceed the line ampacity rating.

2.8.3 If the proposed Generating Facility is to be interconnected using a 120 Volt configuration, the aggregate generating capacity of the system does not exceed a nameplate rating of 4 kW.

2.8.4 The expected maximum change in voltage anywhere along the circuit due to the full output of the aggregate nameplate 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.

2.9 When Certified Inverter Based DER 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.

2.10 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.

2.11 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).

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

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

2.14 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.

2.15 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.

2.16 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).

2.17 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.

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

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

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

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 dispute resolution process must be followed:

3.2.1 In the event of a dispute, the disputing Party shall provide the other Party a written Notice of Dispute containing the relevant known facts pertaining to the dispute, the specific dispute and the relief sought, and express notice by the disputing Party that it is invoking the procedures under this Section. The notice shall be sent to the non-disputing Party's email address and physical address set forth in the Interconnection Agreement or Application, if there is no Interconnection Agreement. A copy of the notice shall also be sent to Interconnection Ombudsperson. The non-disputing Party shall acknowledge the notice within three (3) Business Days of its receipt and identify a representative with the authority to make decisions for the non-disputing Party with respect to the dispute.

3.2.2 The Interconnection Ombudsperson is to be appointed by the PURA chairperson or the chairperson's designee, and should be a member of PURA's Office of Education, Outreach, and Enforcement.

3.2.3 If the dispute is principally related to one or both Parties' compliance with timelines specified in these Interconnection Procedures or associated agreements, the Parties shall seek

assistance from Interconnection Ombudsperson if the Parties cannot mutually resolve the dispute within eight (8) Business Days.

3.2.4 If the dispute is not principally related to one or both Parties' compliance with a timeline, then the non-disputing Party shall provide the disputing Party with all relevant regulatory and/or technical details and analysis regarding any Utility interconnection requirements under dispute within ten (10) Business Days of the date of the notice of dispute. Within twenty (20) Business Days of the date of the notice of dispute, the Parties' authorized representatives shall meet and confer to try to resolve the dispute. Parties shall operate in good faith and use best efforts to resolve the dispute.

3.2.5 If a resolution is not reached in thirty (30) Business Days from the date of the notice of dispute, either (1) a Party may request to continue negotiations for an additional twenty (20) Business Days, or (2) the Parties may by mutual agreement make a written request for mediation to the Interconnection Ombudsperson. Alternatively, both Parties by mutual agreement may request mediation from an outside third-party mediator with costs to be shared equally between the Parties.

3.2.5.1 For the third party mediation process, 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.

3.2.6 If the results of the mediation are not accepted by one or more Parties and there is still disagreement, the dispute shall proceed to the formal complaint process provided by the Authority, where 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.

3.2.7 At any time, either Party may file a complaint before the Authority pursuant to its rules.

3.2.8 If neither Party elects to seek assistance from the Authority, or if the attempted dispute resolution fails, then either Party may exercise whatever rights and remedies it may have in equity or law consistent with the terms of these procedures.

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 EDC shall proceed under the provisions of the Guidelines after the

customer has agreed to the terms, conditions, and requirements included in the Guidelines. Such agreement will be completed and submitted electronically via the respective EDC Interconnection Application portal.

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 nameplate 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 nameplate capacity of the multiple devices; and,

3.7.3 the Application shall be evaluated using the maximum continuous 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:

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.

3.12 Permits and Easements

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.

3.13 Disconnection

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

3.13.1 for scheduled outages upon reasonable notice;

3.13.2 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

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

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

3.14 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.

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

3.16 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.

3.17 Termination

The Interconnection may be terminated under the following conditions:

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

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

3.17.3 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.

3.18 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.

3.19 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 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.

3.20 Withdrawal

The Customer may withdraw its Interconnection Application at any time by

written notice of such withdrawal to the EDC.

3.20.1 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.

3.20.2 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.

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

3.22 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.

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

4 Technical Requirements

4.1 All customer DER installations must be in compliance with local codes, the latest version of IEEE 1547, and be certified per section 4.4.1.

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 standards, including PCS certification for limited-export systems and compliant with

the authorities having jurisdiction. The latest required UL revision will be listed on the respective EDC webpages. 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.

4.5 Metering Requirements:
In the event metering replacement or installation is required for either the revenue meter or generator production meter or both, the meter will be replaced or installed by the EDC in compliance with the applicable EDC's Rates and Tariffs, Program Rules, Service Requirement and Terms and Conditions. It is the sole responsibility of the Applicant to ensure the equipment design and installation is compliant, as the requirements may change over time.

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 For latest guidance on Inverter Trip Settings, Voltage and Frequency Ride-through Capability and Operational Requirements, along with Inverter Grid Support Function Status Requirements, refer to the ISO-NE Source Document located on the DG page of the EDC websites

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4.9 Additional Requirements for bidirectional Electric Vehicles~~4.8~~

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Bidirectional electric vehicle charging systems operating in bidirectional mode while grid-connected and operated in parallel with a power source provided by the utility will be treated as any other inverter-based battery interconnections as defined in those guidelines within this document, except for the following provisions:

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Bidirectional charging systems with an inverter external to the vehicle, referred to as DC Bidirectional Charging Systems, and subject to the guidelines for inverter-based battery interconnection within this document shall be certified to UL1741 Supplement SB.

Bidirectional charging systems with on-board inverter functions in the electric vehicle, referred to as AC Bidirectional Charging Systems, and subject to the guidelines for inverter-based battery interconnection within this document, must either:

(a) Be certified as a DER System through the relevant UL 1741 SB Certification Requirement Decision (CRD), or; **DEFINE CRD**

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(b) Use an EV charging station certified to UL 1741 SC.

If the bidirectional charger is integral to the vehicle itself, the vehicle will not be permitted to export to the grid, or offset a load connected in parallel with a grid source of power at any location other than the point of interconnection with Municipal approval, a meter change when required, and the Permission to Operate documentation. Any material modifications to, or replacement of, bidirectional charging equipment will be subject to the requirements as otherwise referenced within these Guidelines.

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5) 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/wps/portal/uinet/smartenergy/innovation/distributed_generation

Field Code Changed

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: _____

APPLICATION IS FOR:

Is this a new service? Yes_____No ___

New Generating Facility? Yes No

If No, please describe: _____

_____

Is the Interconnection Request for:

☐ Netting ☐ Buy-All

☐ Other (please explain) _____

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 _____

Site Condition and compliance?

Is the disconnect switch as required by section 4.2 located 10 FT from the revenue meter?

- Yes_____
- No If no explain reason. EDC approval is required.

Is the generating facility connected on

- the load side of the customer main breaker or
- On the line side

If connected on the load side than the physical connection of the cable must be outside the meter box on the load side

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 50 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.

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:

Appendix A: Definitions

AC Bidirectional Charging System: A Bidirectional Electric Vehicle Charging System in which the inverter or power conversion functionality is located within the electric vehicle, and which is interconnected to the electric distribution system through compliant electric vehicle supply equipment (EVSE) that serves as the point of interconnection and ensures adherence to all applicable interconnection and control requirements.

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

Area Network: See Low Voltage Secondary Network Grid System

Bidirectional Electric Vehicle Charging System:A system consisting of an electric vehicle and permanently installed electric vehicle supply equipment (EVSE) that is capable of both importing electrical energy from and exporting electrical energy to the electric distribution system while operating in parallel with the grid.

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, 50kW 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 the latest revision of UL-1741 as identified in the EDC webpage.

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

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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.

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(s) having financial responsibility for the EDC electric bill and account.

DC Bidirectional Charging System:
A Bidirectional Electric Vehicle Charging System in which the inverter or power conversion functionality is external to the electric vehicle and incorporated within the electric vehicle supply equipment (EVSE), which serves as the point of interconnection and performs all required grid interface and control functions in accordance with these Guidelines.

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

Distributed Energy Resource (DER): Equipment capable of producing electric energy that are located close to where energy is used, rather than at a large, centralized power plant. These resources include, but are not limited to, technologies such as solar panels, wind turbines, energy storage systems (batteries), fuel cells, Bidirectional Electric Vehicle Charging Systems among others. These technologies can have multiple operational capabilities, such as power production, energy peak shaving, and providing backup emergency power. Also known as and interchangeable with "Generating Facility," within the context of these Guidelines.

Electric Vehicle Supply Equipment (EVSE):
Permanently installed equipment that provides the electrical interface between the electric distribution system and an electric vehicle, including power conversion equipment, control, and communication functions, and which serves as the required point of interconnection for any bidirectional operation under these Guidelines. Such equipment shall be treated as an inverter-based distributed energy resource for purposes of interconnection and must meet all applicable technical, safety, and interconnection requirements of these Guidelines. Such systems may be configured as either AC or DC bidirectional charging systems.

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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.

Energy Storage System (ESS): A DER capable of receiving electric energy from an electric power system (EPS) and storing it for later injection of electricity back into the EPS, regardless of size or storage medium. ESSs may be paired with other generation technologies behind a single point of interconnection, such as photovoltaic.

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. Also known as and interchangeable with "DER" or "DER facility," within the context of these Guidelines.

Guidelines: The "Guidelines for the Interconnection of Residential Single Phase Certified Inverter-Based Generating Facility, 50kW 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

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

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.

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

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.

UL1741SB: Underwriters Laboratories Standard 1741 Supplement B. addresses the testing and certification for grid protection and grid support functions.

Appendix B: Codes and Standards

Generating Facilities shall be in compliance with the latest version of IEEE 1547 series and UL 1741 standards, including PCS certification for limited-export systems, at the time of installation and commissioning.