

# STANDARD FAST TRACK AND STUDY PROCESS GENERATOR INTERCONNECTION AGREEMENT

This Interconnection Agreement (this "**Agreement**"), dated as of July 27, 2022 (the "**Effective Date**"), is entered into by and between Connecticut Light and Power, d/b/a Eversource Energy, a specially chartered Connecticut corporation with a principal place of business at 107 Selden St, Berlin, CT, 06037 (the "**Electric Distribution Company**" or "**EDC**"), and **USS Torrington Solar LLC** with a principal place of business of **100 North 6<sup>th</sup> Street, Suite 410B, Minneapolis, MN 55403** (the "**Generator**"). The EDC and the Generator are collectively referred to herein as the "**Parties**" and individually as a "**Party**." Any capitalized term used but not defined in this Agreement shall have the meaning ascribed to such term in the Guidelines for Generator Interconnection attached hereto as Appendix A, as may be amended from time to time (the "**Guidelines**").

1. Basic Understandings. The Generator owns and/or operates or plans to construct a Generating Facility at **105 Vista Drive, Torrington, CT 06790, Site ID TBD**, as depicted in Appendix H (the "**Facility**"). A description of the Facility as studied, and incorporating any design changes approved in accordance with Section 1.3, is attached hereto as Appendix B (the "**Facility Description**").

1.1. The subject matter of this Agreement pertains to the Interconnection of the Facility to the EPS. This Agreement does not relate to any other obligation of the Generator unrelated to the Interconnection of the Facility. Apart from this Agreement, the Generator is responsible for (a) all arrangements to effect any deliveries of electric energy from the Facility in accordance with the appropriate retail or FERC-jurisdictional tariffs and (b) arranging for its purchase of retail power (such as back-up or stand-by power).

1.2. This Agreement does not cover sales of power, capacity, energy or market products generated from the Facility. If the Generator intends to sell energy or ancillary services from the Facility, it must provide written notice to the EDC of such intention at least sixty (60) days prior to the effectuation of such sale. Furthermore, the EDC may require the Generator to enter into a new Interconnection agreement prior to such sale which may or may not require approval from FERC.

1.3. Any changes to the design of the Facility as it is described and specified in the application submitted by the Generator to the EDC with respect to such Facility (the "**Application**") must be approved by the EDC in writing prior to the implementation of such design changes. Only design changes approved in accordance with this Section 1.3 shall be implemented.

1.4. The Generator may not operate the Facility in parallel with the EPS until: (a) the conditions for initial parallel operation of the Facility set forth in Appendix C have been met; (b) commissioning and testing of the Facility has been completed in accordance with the Guidelines and to the satisfaction of the EDC; (c) the Generator has paid the EDC all funds due pursuant to paragraphs 5.3.1 and 5.3.2 of this Agreement; and (d) the EDC has provided formal written authorization in accordance with the Guidelines stating that operation of the Facility in parallel with the EPS is authorized by the EDC (the "**Authorization Date**"). Such written authorization will not be effective unless accompanied by a description of the Facility that incorporates all design changes to the Facility since the Application was submitted to the EDC (and not specified therein), including all design changes made during construction.

1.5. The Generator shall obtain each consent, approval, authorization, order or acceptance from FERC necessary for the Generator or any entity that, directly or indirectly, through one or more intermediaries, controls, or is controlled by, or is under common control with the Generator

(each, an "**Affiliate**") to sell any power, capacity, energy or market products from the Facility into the wholesale power market (collectively, "**Wholesale Sales**") prior to making any such sales. If the Generator intends to make Wholesale Sales, then the Generator shall provide written notice to the EDC at least sixty (60) days prior to making any Wholesale Sales. The Generator shall indemnify, defend and hold harmless the EDC, its trustees, directors, officers, employees, agents and affiliates from any costs, damages, fines or penalties, including reasonable attorneys' fees, directly resulting from Generator's or its Affiliate's non-compliance with any provision of this Section 1.5; provided, however, that the such indemnification obligation shall be subject to the limitation of liability set forth in Section 14.

2. Entire Agreement.

2.1. This Agreement, including any attachments or appendices, is entered into pursuant to the Guidelines.

2.2. This Agreement, the Guidelines, and the relevant EDC Tariffs, Terms and Conditions represent the entire understanding between the Parties as to the subject matter of this Agreement.

2.3. Each Party hereby represents that in entering into this Agreement, it has not relied on any promise, inducement, representation, warranty, agreement or other statement not set forth in this Agreement, the Tariffs, Terms and Conditions, or the Guidelines.

2.4. In the event of a conflict between this Agreement, the Guidelines and/or the Tariffs, Terms and Conditions, the Tariffs, shall take first precedent, followed by the Terms and Conditions, followed by the Guidelines, and lastly this Agreement.

3. Term.

3.1. This Agreement is effective as of the Effective Date. The Agreement shall continue in full force and effect until terminated pursuant to Section 4.

4. Termination.

4.1. This Agreement may be terminated under the following conditions:

4.1.1. The Parties may mutually terminate this Agreement at any time upon the execution of an agreement to terminate this Agreement.

4.1.2. The Generator may terminate this Agreement at any time by providing sixty (60) days written notice to EDC.

4.1.3. Either Party may terminate this Agreement immediately upon the occurrence of an Event of Default (as such term is defined in Section 20.1) by the other Party, subject to the notice requirement set forth in Section 20.2(c).

4.1.4. The EDC may terminate this Agreement if the Generator: (a) operates the Facility in parallel with the EPS prior to the Authorization Date; (b) fails within six months of testing to receive authorization from the EDC to operate in parallel with the EPS; (c) does not construct the Facility in accordance with the Facility Description; (d) modifies the Facility without the written approval of the EDC; (e) fails to energize the Facility within twelve months of the Authorization Date; or (f) permanently abandons the Facility. For the purposes of this Agreement, the Generator's failure to operate the Facility for any consecutive twelve month period after the Authorization Date shall be deemed a permanent abandonment.

4.1.5. The EDC may terminate this Agreement if the Generator fails to correct an Emergency Condition (as such term is defined in Section 7.1.1) or a Non-Emergency Adverse Operating Effect (as such term is defined in Section 7.1.4) within ninety (90) days from the date on which the EDC disconnected the Facility due to such event.

4.2. Survival of Obligations. The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of termination.

4.3. Related Agreements. Any agreement attached to and incorporated into this Agreement shall terminate concurrently with this Agreement unless the Parties have agreed otherwise in writing.

## 5. General Payment Terms.

5.1. Interconnection Costs. The Generator is responsible for paying all costs associated with Interconnection of the Facility, including (a) testing costs, (b) costs associated with installing, testing and maintaining the communications infrastructure necessary to provide protection and/or monitoring of the Generating Facility (collectively, the "**Communications Costs**"), (c) construction, modification or upgrade costs necessary to accommodate the Interconnection (collectively, the "**Construction Costs**"), and (d) any ongoing maintenance costs and other charges deemed necessary by the EDC to maintain the Interconnection (all such costs described in this sentence, the "**Interconnection Costs**"). The EDC shall notify the Generator in the event the Construction Costs exceed 110% of the estimate of such costs provided by the EDC to the Generator in the Construction Agreement (as such term is defined below), facility study report or other written understanding of the Parties.

5.2. Initial Cost Estimate. Attached hereto as Appendix D is a good-faith estimate of the initial Interconnection Costs (the "**Initial Cost Estimate**").

5.3. Billing and Payment Procedures for Initial Interconnection Costs.

5.3.1. The Generator shall pay the EDC the amount set forth in the Initial Cost Estimate (the "**Initial Payment**") within thirty (30) days of the Effective Date.

5.3.2. Within thirty (30) days following the date on which the Facility is first connected to the EPS (the "**Initial Interconnection**"), the EDC shall provide the Generator with a final accounting report detailing any Underpayment (as such term is defined below) or Overpayment (as such term is defined below) made by the Generator with respect to the Initial Payment. To the extent that the actual Interconnection Costs accrued up to the date of the Initial Interconnection exceed the Initial Payment (an "**Underpayment**"), the EDC shall invoice the Generator for an amount equal to the Underpayment and the Generator shall pay such amount to the EDC within thirty (30) days of such invoice. To the extent that the Initial Payment exceeds the actual Interconnection Costs accrued up to the date of the Initial Interconnection (an "**Overpayment**"), the EDC shall refund to the Generator an amount equal to the Overpayment within thirty (30) days of the provision of such final accounting report.

5.4. Billing and Payment Procedures for Ongoing Interconnection Costs. All Interconnection Costs incurred following the Initial Interconnection shall hereinafter be referred to as the "**Ongoing Costs**," and shall include maintenance, testing and Communications Costs, as well as any Construction Costs not included in either (a) the Construction Agreement by and between the Generator and the Company, dated as of [N/A], a copy of which is attached hereto as Appendix E (the "**Construction Agreement**"), or (b) the Initial Cost Estimate. The EDC shall invoice the Generator for all Ongoing Costs as such costs are incurred, and the Generator shall pay each such invoice within thirty (30) days of receipt, or as otherwise agreed to by the Parties.

5.5. Milestones. The Parties shall agree on milestones for which each Party is responsible and list them in Appendix F of this Agreement. A Party's obligations under this provision may be extended by agreement. If a Party anticipates that it will be unable to meet a milestone for any reason other than a Force Majeure Event (as such term is defined in Section 18.1), it shall immediately notify the other Party of the reason(s) for not meeting the milestone and (a) propose the earliest reasonable alternate date by which it can attain this and future milestones, and (b) requesting appropriate amendments to Appendix F. The Party affected by the failure to meet a milestone shall not unreasonably withhold agreement to such an amendment unless (i) it will suffer significant uncompensated economic or operational harm from the delay, (ii) attainment of the same milestone has previously been delayed, or (iii) it has reason to believe that the delay in meeting the milestone is intentional or unwarranted notwithstanding the circumstances explained by the Party proposing the amendment.

5.6. Distribution Upgrades. The EDC shall design, procure, construct, install, and own the upgrades described in Appendix G of this Agreement (the "**Upgrades**"). If the EDC and the Generator agree, the Generator may construct Upgrades that are located on land owned by the Generator. The actual cost of the Upgrades, including overheads, shall be directly assigned to the Generator. The Generator shall be responsible for its share of all reasonable expenses, associated with operating, maintaining, repairing, and replacing such Upgrades, except to the extent that a retail tariff of, or an agreement with, the EDC provides otherwise.

5.7. Taxes. The Parties shall comply with all applicable federal and state tax laws.

## 6. Operating Requirements.

6.1. General Operating Requirements. The Generator shall construct, interconnect, operate, and maintain the Facility and all accompanying and necessary facilities in accordance with (a) all applicable laws and requirements, Good Utility Practice, the Guidelines, Tariffs, and the Terms and Conditions; (b) applicable specifications that meet or exceed those provided by the National

Electrical Safety Code, the American National Standards Institute, IEEE, Underwriter's Laboratory and ISO-NE operating requirements in effect at the time of construction and other applicable national and state codes and standards. Following the initial Interconnection of the Facility, the Generator shall comply with all special operating requirements set forth in Appendix C. In the event that the EDC believes that the cause of any problem to the EPS originates from the Facility, the EDC has the right to install monitoring equipment at a mutually agreed upon location to determine the exact cause of the problem. The cost of such monitoring equipment shall be borne by the EDC, unless such problem or problems are demonstrated to be caused by the Facility or if the test was performed at the request of the Generator in which case the costs of the monitoring equipment shall be borne by the Generator. If the operation of the Facility interferes with the EDC's or its customers' operations, the Generator must immediately take corrective action to stop such interference and shall not operate the Facility until such time as such interference is stopped. If the Generator fails to take immediate corrective action pursuant to the preceding sentence, then the EDC may disconnect the Facility as set forth in the Guidelines.

6.2. No Adverse Effects; Non-interference.

6.2.1. The EDC shall notify the Generator if the EDC has evidence that the operation of the Facility could cause disruption or deterioration of service to other customers served from the EPS or if operation of the Facility could cause damage to the EPS or other affected systems. (For example, deterioration of service could be caused by, among other things, harmonic injection in excess of IEEE STD 519, as well as voltage fluctuations caused by large step changes in loading at the Facility.) The Generator shall cease operation of the Facility until such time as the Facility can operate without causing disruption or deterioration of service to other customers served from the EPS or causing damage to the EPS or other affected systems. Each Party shall promptly notify the other Party in writing of any condition or occurrence relating to such Party's equipment or facilities which, in such Party's reasonable judgment, could adversely affect the operation of the other Party's equipment or facilities.

6.2.2. The EDC shall operate the EPS in such a manner so as to not unreasonably interfere with the operation of the Facility. The Generator shall protect itself from normal disturbances propagating through the EPS in accordance with Good Utility Practice. Examples of such disturbances include single-phasing events, voltage sags from remote faults on the EPS, and outages on the EPS.

6.3. Safe Operations and Maintenance.

6.3.1. General. The Generator shall operate, maintain, repair, and inspect, and shall be fully responsible for, the Facility or facilities that it now or hereafter may own unless otherwise specified in this Agreement. Each Party shall be responsible for the maintenance, repair and condition of its respective lines and appurtenances on such Party's respective side of the Point of Interconnection. The EDC and the Generator shall each provide equipment on its respective side of the Point of Interconnection that adequately protects the EPS, personnel, and other persons from damage and injury. If the EDC has constructed or owns facilities that are identified at the time of Interconnection as specifically required by or as a result of such Interconnection, then the Generator shall reimburse the EDC for the costs of maintaining and repairing such facilities.

6.3.2. Ongoing Maintenance; Testing of the Facility. The Parties hereby acknowledge and agree that maintenance testing of the Facility's protective relaying is imperative for safe, reliable operation of the Facility. The test cycle for such protective relaying shall not be less frequent than once every sixty (60) calendar months or the manufacturer's recommended test cycle, whichever is more frequent. The Generator shall provide copies of these test records to the EDC within thirty (30) days of the completion of such maintenance testing. The EDC may disconnect the Facility from the EPS if the Generator fails to adhere to this Section 6.3.2. The Generator is responsible for all ongoing maintenance costs associated with the Facility.

6.4. Access.

6.4.1. Emergency Contact Information. Each Party shall provide to the other Party and shall update as necessary a telephone number that can be used at all times to allow the other Party to report an emergency.

6.4.2. EDC Right to Access EDC-Owned Facilities and Equipment. The Generator shall allow the EDC access to the EDC's equipment and the EDC's facilities located on the Facility's premises (the "**EDC Property**"). To the extent that the Generator does not own all or part of the real property on which the EDC is required to locate EDC Property in order to serve the Facility, the Generator shall procure and provide to the EDC all necessary rights, including easements, for access to the EDC Property.

6.4.3. Isolation Device. The EDC shall have access to the Isolation Device of the Facility at all times. Generator is responsible for obtaining any and all property rights, including easements, which will permit the EDC access to such Isolation Device.

6.4.4. Right to Review Information. The EDC shall have the right to review and obtain copies of the Generator's operations and maintenance records, logs, or other information such as unit availability, maintenance outages, circuit breaker operation requiring manual reset, relay targets and unusual events pertaining to the Facility or its Interconnection with the EPS. The EDC shall treat such information as confidential and shall use such information solely for the purposes of determining compliance with the operating requirements set forth in this Section 6.

7. Disconnection.

7.1 Temporary Disconnection.

7.1.1 Emergency Conditions. The EDC may immediately and temporarily disconnect the Facility from the EPS without prior notification in cases where, in the reasonable judgment of the EDC, the continued connection of the Facility is imminently likely to (a) endanger persons or damage property or (b) cause an adverse effect on the integrity or security of, or damage to, the EPS or to other electric power systems to which the EPS is directly connected (each, an "**Emergency Condition**"). Upon becoming aware of an Emergency Condition, the Generator shall (i) immediately suspend operation of the Facility and (ii) promptly provide written notice to the EDC of such Emergency Condition and suspension (an "**Emergency Condition Notice**"). The Emergency Condition Notice shall describe (A) such Emergency Condition, (B) the extent of any damage or deficiency, (C) the expected effect on the operation of each Party's facilities and operations, (D) the anticipated duration of such Emergency Condition and (E) the necessary corrective action.

After temporary disconnection or suspension pursuant to this Section 7.1.1, the Facility may not be reconnected or resume operation until the EDC and Generator are both satisfied that the cause of such Emergency Condition has been corrected. If the Generator fails to correct the Emergency Condition within ninety (90) days from the time that the EDC has temporarily disconnected the Facility due to such an event, the EDC may elect to terminate this Agreement in accordance with Section 4.1.5 and/or permanently disconnect the Facility in accordance with Section 7.2.2.

7.1.2 Routine Maintenance, Construction and Repair. The EDC shall have the right to disconnect the Facility from the EPS when necessary for routine maintenance, construction and repairs to the EPS. The EDC shall provide the Generator with a minimum of seven (7) days prior written notice of such disconnection, consistent with the EDC's planned outage notification protocols. If the Generator requests disconnection by the EDC at the Point of Common Interconnection, the Generator will provide a minimum of seven (7) days prior written notice to the EDC. The EDC shall make reasonable efforts to work with Generator to schedule a mutually convenient time or times to temporarily disconnect the Facility pursuant to this Section 7.1.2.

7.1.3 Forced Outages. During any forced outage, the EDC shall have the right to temporarily disconnect the Facility from the EPS in order to effect immediate repairs to the EPS. The EDC shall use reasonable efforts to provide the Generator with prior notice of such temporarily disconnection; provided, however, the EDC may temporarily disconnect the Facility from the EPS without such notice pursuant to this Section 7.1.2 in the event circumstances do not permit such prior notice to the Generator.

7.1.4 Non-Emergency Adverse Operating Effects. The EDC may temporarily disconnect the Facility if it is having a non-emergency adverse operating effect on the EPS or on other customers (a "***Non-Emergency Adverse Operating Effect***") if the Generator fails to correct such Non-Emergency Adverse Operating Effect within forty-five (45) days of the EDC's written notice to the Generator requesting correction of such Non-Emergency Adverse Operating Effect. If the Generator fails to correct a Non-Emergency Adverse Operating Effect within ninety (90) days from the time that the EDC has temporarily disconnected the Facility due to such an event, the EDC may elect to terminate this Agreement in accordance with Section 4.1.5 and/or permanently disconnect the Facility in accordance with Section 7.2.2.

7.1.5 Modification of the Facility. The EDC has the right to immediately suspend Interconnection service and temporarily disconnect the Facility in the event any material modification to the Facility or the Generator's Interconnection facilities has been implemented without prior written authorization from the EDC.

7.1.6 Re-connection. Any temporary disconnection pursuant this Section 7.1 shall continue only for so long as is reasonably necessary. The Generator and the EDC shall cooperate with each other to restore the Facility and the EPS, respectively, to their normal operating states as soon as reasonably practicable following the correction of the event that led to the temporary disconnection.

## 7.2 Permanent Disconnection.

7.2.1 The Generator may permanently disconnect the Facility at any time upon thirty (30) days prior written notice to the EDC.

7.2.2 The EDC may permanently disconnect the Facility upon termination of this Agreement in accordance with Section 4.

7.2.3 The EDC may permanently disconnect the Facility in the event the Generator is unable to correct an Emergency Condition or a Non-Emergency Adverse Operating Effect in accordance with Section 7.1.1 or Section 7.1.4, respectively.

8. Metering.

8.1. Metering of the output from the Facility shall be conducted pursuant to the terms of the Guidelines.

9. Assignments.

9.1 Except as provided herein, the Generator shall not voluntarily assign its rights or obligations, in whole or in part, under this Agreement without the EDC's prior written consent, which consent shall not be unreasonably withheld or delayed. Any assignment the Generator purports to make without the EDC's prior written consent shall not be valid. Notwithstanding the foregoing, the EDC's consent shall not be required for any assignment made by the Generator to an Affiliate with an equal or greater credit rating and with the legal authority and operational ability to satisfy the obligations of the Generator under this Agreement; provided that that Generator promptly notifies the EDC of any such assignment. In all events, the Generator shall not be relieved of its obligations under this Agreement unless, and until, the permitted assignee assumes in writing all obligations of this Agreement and notifies the EDC of such assumption.

10. Confidentiality.

10.1 The EDC shall maintain the confidentiality of information provided from the Generator to the EDC if such information is clearly marked and labeled "Confidential" (the "**Confidential Information**"). Confidential Information shall not include information that (a) is or hereafter becomes part of the public domain, (b) previously was in the possession of the EDC, or (c) the EDC is required to disclose pursuant to a valid order of a court or other governmental body or any political subdivision thereof; provided, however, that to the extent that it may lawfully do so, the EDC shall first have given notice to the Generator and given the Generator a reasonable opportunity to interpose an objection or obtain a protective order requiring that the Confidential Information and/or documents so disclosed be used only for the purpose for which the order was issued; provided further that if such Confidential Information is requested or required by the PURA, the EDC shall seek protective treatment of such Confidential Information.

11. Insurance Requirements.

11.1 General Liability. In connection with the Generator's performance of its duties and obligations under this Agreement, the Generator shall maintain, during the term of this Agreement, general liability insurance with a combined single limit of not less than:



11.1.1 Three hundred thousand dollars (\$300,000) per occurrence and in the aggregate for bodily injury and/or property damage claims where the gross nameplate rating of the Facility is less than or equal to an aggregate of 100 kW;

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

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

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

11.2 Insurer Requirements and Endorsements. All insurance required pursuant to this Section 11 shall be carried by insurers qualified to underwrite insurance in Connecticut with an A.M. Best rating of A- or better. In addition, all insurance shall: (a) include the EDC as an additional insured for Generating facilities greater than 1MW; (b) contain a severability of interest clause or cross-liability clause unless the Generator is a residential customer; (c) provide that the EDC shall not be liable to the insurance carrier with respect to the payment of premium for such insurance; and (d) provide for written notice to the EDC thirty (30) days prior to cancellation, termination, or material change of such insurance.

### 11.3 Evidence of Insurance.

11.3.1 Evidence of the insurance required pursuant to this Section 11 shall state that the coverage provided is primary, and is not excess of or contributing with any insurance or self-insurance maintained by the EDC.

11.3.2 The Generator is responsible for providing the EDC with evidence of insurance on an annual basis as set forth in the Guidelines.

11.3.3 Prior to the EDC commencing any work on system modifications, the Generator shall have its insurer provide to the EDC certificates of insurance evidencing the insurance coverage required pursuant to this Section 11. Such certificates shall clearly indicate whether such insurance policy is written on a "claims-made" basis.

11.3.4 The EDC may, at its discretion, require the Generator to maintain tail coverage with respect to any policy written on a "claims-made" basis for a period of three years after expiration or termination of such policy.

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

## 12. Performance Assurance.

12.1 If the EDC reasonably expects that any Interconnection Costs necessary to accommodate the Facility will be in excess of fifty thousand dollars (\$50,000) in the aggregate in any calendar

year, the EDC may require that the Generator provide to the EDC a guarantee, a surety bond, letter of credit or other form of security that is reasonably acceptable to the EDC at least twenty (20) Business Days prior to the commencement of the related work. Such security for payment shall be in an amount sufficient to cover such Interconnection Costs. In addition:

12.1.1. Any guarantee provided by the Generator pursuant to this Section 12 shall be made by an entity that meets the creditworthiness requirements of the EDC, and contain terms and conditions that guarantee payment of any amount that may be due from the Generator, up to an agreed-to maximum amount; and

12.1.2. Any letter of credit or surety bond provided by the Generator pursuant to this Section 12.1.2 shall be issued by a financial institution or insurer reasonably acceptable to the EDC and must specify an expiration date reasonably acceptable to the EDC.

### 13. Indemnification.

13.1 Indemnification of the EDC. Subject to the limitation of liability set forth in Section 14, the Generator shall indemnify, defend and hold harmless the EDC and its trustees, directors, officers, employees and agents (including affiliates, contractors and their employees) from and against any liability, damage, loss, claim, demand, complaint, suit, proceeding, action, audit, investigation, obligation, cost, judgment, adjudication, arbitration decision, penalty (including fees and fines), or expense (including court costs and attorneys' fees) relating to, arising from or connected to this Agreement.

13.2 Indemnification of the Generator. Subject to the limitation of liability set forth in Section 14, the EDC agrees to indemnify, defend and hold harmless the Generator, its trustees, directors, officers, employees and agents (including Affiliates, contractors and their employees), from and against any and all damages for personal injury (including death) or property damage to unaffiliated third parties arising from any and all actions relating to or arising out of any material failure by the EDC to perform any of its obligations pursuant to Section 6.2.2 of this Agreement.

13.3 Survival of Indemnification. The indemnification obligations of each Party set forth in this Section 13 shall continue in full force and effect regardless of whether this Agreement has expired or been terminated, defaulted or cancelled and shall not be limited in any way by any limitation on insurance.

### 14. Limitation of Liability.

14.1 Except with respect to a Party's fraud or willful misconduct, and except with respect to damages sought by a third party in connection with a third party claim: (a) neither Party shall be liable to the other Party, for any damages other than direct damages; and (b) each Party agrees that it is not entitled to recover and agrees to waive any claim with respect to, and will not seek, consequential, punitive or any other special damages as to any matter under, relating to, arising from or connected to this Agreement.

### 15. Amendments and Modifications.

15.1 No amendment or modification of this Agreement shall be binding unless in writing and duly executed by both Parties.

16. Permits and Approvals.

16.1 The Generator is responsible for obtaining all environmental and other permits required by governmental authorities for the construction and operation of the Facility (each, a "**Required Permit**"). The EDC assumes no responsibility for obtaining any Required Permit, advising the Generator with respect to Required Permits, or assuring that all Required Permits have been obtained by the Generator. Upon written request of the EDC, the Generator shall promptly provide to the EDC a copy of any Required Permit.

17. Environmental Releases.

17.1 Each Party shall immediately notify the other Party, first orally and then in writing, of any of the following events related to the Facility upon becoming aware of such event: (a) the release of any hazardous substances; (b) any asbestos or lead abatement activities; or (c) any type of remediation activities. The Party having the responsibility for reporting such an event to appropriate governmental authorities shall promptly furnish to the other Party copies of any publicly available reports filed with such authorities.

18. Force Majeure.

18.1 For purposes of this Agreement, "**Force Majeure Event**" means any event or circumstance that (a) is beyond the reasonable control of the affected Party and (b) the affected Party is unable to prevent or provide against by exercising commercially reasonable efforts. Force Majeure Events include the following events or circumstances, but only to the extent they satisfy the foregoing requirements: (i) acts of war or terrorism, public disorder, insurrection, or rebellion; (ii) floods, hurricanes, earthquakes, lightning, storms, and other natural calamities; (iii) explosions or fire; (iv) strikes, work stoppages, or labor disputes; (v) embargoes; and (vi) sabotage. In no event shall the lack of funds or the inability to obtain funds constitute a Force Majeure Event.

18.2 If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, such Party will promptly notify the other Party in writing, and will keep the other Party informed on a continuing basis of the scope and duration of the Force Majeure Event. The affected Party shall specify in reasonable detail the circumstances of the Force Majeure Event, its expected duration, and the steps that the affected Party is taking to mitigate the effects of the event on its performance. The affected Party may suspend or modify its performance of obligations under this Agreement, other than the obligation to make payments then due or becoming due under this Agreement, but only to the extent that the effect of the Force Majeure Event cannot be mitigated by the use of commercially reasonable efforts. The affected Party shall use commercially reasonable efforts to resume its performance as soon as possible. Without limiting this section, the Generator shall immediately notify the EDC verbally if the failure to fulfill the Generator's obligations under this Agreement may impact the safety or reliability of the EPS.

19. Notices.

19.1 All notices, demands and other communications to be given or delivered under or by reason of the provisions of this Agreement shall be in writing and shall be deemed to have been given: (a) immediately when personally delivered; (b) when received by first class mail, return receipt requested; (c) one day after being sent for overnight delivery by Federal Express or other overnight delivery service; or (d) when receipt is acknowledged, either

electronically or otherwise, if sent by facsimile, telecopy or other electronic transmission device. Notices, demands and communications to the other Parties shall, unless another address is specified by such Parties in writing, be sent to the addresses indicated below:

If to the EDC:

**Eversource Energy**

107 Selden Street, Berlin, CT 06037

Attention: Manager, Distributed Energy Resources

Phone: 866-324-2437

If to the Generator:

**USS Torrington Solar LLC**

100 North 6th Street, Suite 410B, Minneapolis, MN 55403

Att: Allen Tate

Phone: (603)696-4204

19.2 Each Party may designate operating representatives to conduct daily communications between the Parties, which may be necessary or convenient for the administration of this Agreement. The names, addresses, and phone numbers of each Party's representatives shall be provided in writing by such Party to the other Party.

20. Default and Remedies.

20.1 Defaults. Each of the following shall constitute an "***Event of Default***,"

20.1.1. A Party fails to pay any bill or invoice for charges incurred pursuant to this Agreement or any other amount due from such Party to the other Party as and when due, any such failure shall continue for a period of thirty (30) days after written notice of nonpayment from the affected Party to the defaulting Party; provided, however, if such Party disputes such bill, invoice or other amount due in good faith, then such failure to pay shall not constitute an Event of Default and the Parties shall resolve such dispute in accordance with Section 21;

20.1.2. A Party (a) fails to comply with any other provision of this Agreement or breaches any representation or warranty in any material respect and (b) fails to cure or remedy such failure or breach within sixty (60) days after notice and written demand by the other Party to cure the same or such longer period reasonably required to cure the same (not to exceed an additional ninety (90) days unless otherwise mutually agreed upon, provided that the failing or breaching Party diligently continues to cure until such failure or breach is fully cured). This provision pertains only to cure periods not specifically addressed elsewhere in this Agreement;

20.1.3. A Generator modifies the Facility or any part of the Interconnection without the prior written approval of the EDC; or

20.1.4. A Party fails to perform any obligation hereunder in accordance with (a) applicable laws and regulations, (b) the ISO-NE operating documents, procedures, and reliability standards, and (c) Good Utility Practice.

20.2 Remedies. Upon the occurrence of an Event of Default, the non-defaulting Party may, at its option, in addition to any remedies available under any other provision herein, do any,

or any combination, as appropriate, of the following: (a) continue to perform and enforce this Agreement; (b) recover damages from the defaulting Party except as limited by this Agreement; (c) by written notice to the defaulting Party terminate this Agreement; or (d) pursue any other remedies it may have under this Agreement or under applicable law or in equity.

21. Dispute Resolution Procedures.

21.1 Each Party shall agree to attempt to resolve all disputes promptly, equitably and in good faith. If the Parties are unable to informally resolve any dispute, the Parties shall follow the dispute resolution process set forth in the Guidelines.

22. Subcontractors.

22.1 Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that the hiring Party shall require such subcontractor to comply with all applicable terms and conditions of this Agreement in providing such subcontracting services and the hiring Party shall remain primarily liable to the other Party for the performance of such subcontractor.

22.2 The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor hired by the hiring Party to perform its obligations under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

22.3 The obligations under this Section 22 will not be limited in any way by any limitation of subcontractor's insurance.

23. Miscellaneous.

23.1 Governing Law. This Agreement and the legal relations between the Parties will be governed by and construed in accordance with the laws of the State of Connecticut applicable to contracts made and performed in such State and without regard to conflicts of law doctrines.

23.2 Non-waiver. No failure on the part of any Party to exercise or delay in exercising any right hereunder shall be deemed a waiver thereof, nor shall any single or partial exercise of any right hereunder preclude any further or other exercise of such or any other right.

23.3 No Third Party Beneficiaries. This Agreement is made solely for the benefit of the Parties. Nothing in the Agreement shall be construed to create any rights in or duty to, or standard of care with respect to, or any liability to, any person not a party to or otherwise bound by this Agreement.

23.4 Severability. If any provision of this Agreement is held to be unenforceable for any reason, such provision shall be adjusted rather than voided, if possible, to achieve the intent of the Parties. If no such adjustment is possible, such provision shall be fully severable and

severed, and all other provisions of this Agreement will be deemed valid and enforceable to the extent possible.

- 23.5 No Partnership. Nothing in this Agreement shall constitute or be construed to be or create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. No Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Parties.
- 23.6 Headings. All headings in this Agreement are included solely for convenient reference, are not intended to be full and accurate descriptions of the contents of this Agreement, will not be deemed a part of this Agreement, and will not affect the meaning or interpretation of this Agreement.
- 23.7 Changes in State Regulations or Law. Upon thirty (30) days prior written notice, EDC may terminate this Agreement if there are any changes in PURA regulations or Connecticut law that affects the EDC's ability to perform its obligations under this Agreement.
- 23.8 General Rules of Construction. For all purposes of this Agreement: (a) all terms defined herein or in the Guidelines shall have the meanings assigned to them herein or in the Guidelines, as the case may be, and shall include the plural as well as the singular; (b) all references in this Agreement to designated "Sections" and other subdivisions are to the designated Sections and other subdivisions of the body of this Agreement; (c) pronouns of either gender or neuter will include, as appropriate, the other pronoun forms; (d) the words "herein," "hereof" and "hereunder" and other words of similar import refer to this Agreement as a whole and not to any particular Section or other subdivision; (e) "or" is not exclusive; (f) "including" and "includes" will be deemed to be followed by "but not limited to" and "but is not limited to," respectively; (g) any definition of or reference to any law, agreement, instrument or other document herein will be construed as referring to such law, agreement, instrument or other document as from time to time amended, supplemented or otherwise modified; (h) any definition of or reference to any law or statute will be construed as referring also to any rules and regulations promulgated thereunder; and (i) as used herein, "days" shall mean "calendar days."
- 23.9 Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, and all counterparts so executed shall constitute one agreement binding on all of the Parties hereto, notwithstanding that all of the Parties are not signatories to the same counterpart. Facsimile counterparts may be delivered by any Party, with the intention that they shall have the same effect as an original counterpart hereof.
- 23.10 Signatures. Each Party hereby signifies its agreement to the all of the terms of this Agreement by its signatures hereto. Each Party represents that it has carefully reviewed this Agreement individually and with counsel and that it has knowingly and willingly executed this Agreement.

***[Signature Page Follows]***

IN WITNESS HEREOF, the Parties have caused this INTERCONNECTION AGREEMENT to be executed on the day and year first written above.

THE EDC

By: James Cerkanowicz

Name: James Cerkanowicz

Title: DER Project Manager

Duly Authorized

THE GENERATOR

By: 

Name: Reed Richerson

Title: Vice President

Duly Authorized

**Appendix A**

**Guidelines for Generator Interconnection Fast Track and Study Processes April 5, 2019**

(Intentionally omitted)



## Appendix B

### Description of the Facility as studied, and incorporating any approved design changes

**Project description & size:** Photovoltaic generating facility consists of a 2000-kW system

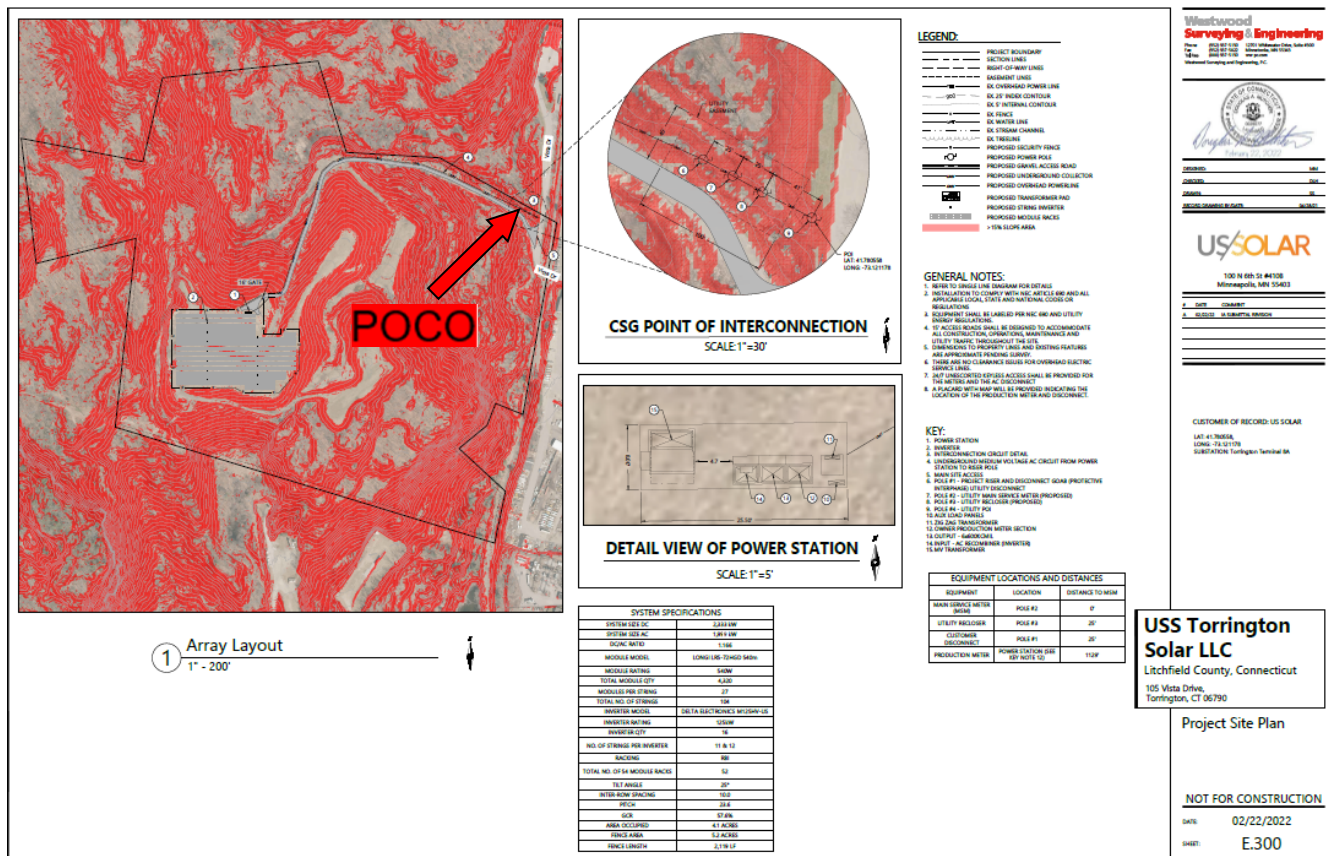
**Street Address:** Located at 105 Vista Dr, Torrington CT.

**Point of interconnection:** The Project will interconnect to the Eversource 13.2 kV Torrington Terminal 8A1 circuit distribution system via a primary service.

**System Description:** The Project consists of Sixteen (16) M125HV-US 125KW 600 V inverters.

**Point of Change of Ownership (POCO):** Approximate location is shown below.

**Service type & description:** The new service will consist of approximately three new poles, a recloser and overhead primary meter. Everything behind the primary meter will be owned and maintained by the customer.



## Appendix C

### **Conditions for Parallel Operation of Generating Facility, Special Operating Requirements**

- 1- Enable the default ramp rate @ 500kW/minute.
- 2- The Project will be operating at unity power factor
- 3- Maximum export will be 2000 kW AC for parcel 1 of 1.
- 4- Inverter setting per ISO-NE and Generator Interconnection Guidelines. Refer to Eversource Energy “The Eversource and United Illuminating Company Exhibit B- Generator Interconnection Technical Requirements” dated April 5<sup>th</sup>, 2019. The settings can be found in Appendix C
- 5- The visible break AC Disconnect switch is required as identified The Eversource and United Illuminating Company Exhibit B- Generator Interconnection Technical Requirements” dated April 5<sup>th</sup>, 2019 section 2.4 Visible break.

Appendix D

Initial Cost Estimate

Witness test: See Appendix G for total costs

Please refer to Section 5.3 – Billing and Payment Procedures for Initial Interconnection Costs. If someone other than the generator/customer is responsible for the payment, please note and sign below.

Other responsible party: \_\_\_\_\_

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

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

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

**Appendix E**


**Construction Agreement**

None required.

**Appendix F**  
**Attachment I**  
**Schedule of Milestones**

<b>No</b>	<b>Milestones for Interconnection</b>	<b>Due by Date</b>	<b>Responsible Party</b>	<b>Comments</b>
1.	Sign and Return Schedule of Milestones Appendix F attachment I	30 Business days from the Effective Date"	Generator	
2.	Sign and return schedule of payment (Appendix G)	30 Business days from the Effective Date"	Generator	
3.	Sign and return Interconnection Agreement	30 Business days from the Effective Date"	Generator	
4.	Sign and return On Going Costs Appendix G, Attachment III	30 Business days from the Effective Date"	Generator	
5.	Provide initial payment in compliance with Appendix G, Attachment II	Refer to Appendix G, Attachment II	Generator	
6.	File a new service request	Within 15 business days after construction kickoff meeting	Generator	
7.	Secure Easements	Prior to start of Eversource construction	Generator	Refer to Appendix F Attachment II note 6
8.	Construction kick off call/meeting as needed.	15 business days after initial payment	Eversource/Generator	
9.	Start Eversource procurement	15 business days after 100% payment	Eversource	Refer to Appendix F Attachment II note 6
10.	Provide final design and three-line diagram	30 business days after 100% payment	Generator	Refer to Appendix F Attachment II note 8
11.	Submit Certificate of Insurance	Prior to start of Eversource construction	Generator	
12.	Complete Eversource Construction	6 months from 100 % payment, completion of easements and completion of detailed engineering	Eversource	
13.	Provide Witness Test plan with all associated documentation	Minimum 20 Business days before scheduling witness test	Generator	
14.	Submit proof of Municipal Approval (WR# by Eversource)	Minimum 10 Business days before scheduling witness test	Generator	
15.	Conduct Witness Test	15 business days from Inspector approval and approved witness test	Eversource	

		procedure		
16.	Send authorization to interconnect Letter / In-service date	10 business days from successful witness test and receipt of all documents	Eversource	

**Generator**  **Date:** 8/8/2022

**Eversource Energy** James Cerkanowicz **Date:** 08/10/2022

## **Attachment II Schedule of Milestones**

- 1- In order to meet the ISD stated in the milestone in appendix F all stated milestones must be completed at least 3 weeks prior to the ISD including all easement requirements for this project.
- 2- A witness test is required to be performed per the Generator Interconnection Guidelines. Refer to Eversource Energy “The Eversource and The United Illuminating Company Exhibit B- Generator Interconnection Technical Requirements” dated April 5<sup>th</sup>, 2019 section 7.
- 3- A test plan must outline the steps necessary to demonstrate that when the AC disconnect switch is opened, the PV inverters stop conducting within two (2) seconds or less, and when the AC disconnect switch is closed, the PV inverters do not start to conduct for at least five (5) minutes. The test must also demonstrate that the inverter shuts down upon loss of each individual phase.
- 4- Inverter setting per ISO-NE and Generator Interconnection Guidelines. Refer to Eversource Energy “The Eversource and United Illuminating Company Exhibit B- Generator Interconnection Technical Requirements” dated April 5<sup>th</sup>, 2019. The settings can be found in Appendix C. The settings must be included in the test plan.
- 5- The Project will interconnect to the Eversource Circuit via a primary service. Metering will be pole mounted and final location of poles will be determined during construction. Eversource will require easements for all Eversource equipment on private property. Easement will be the responsibility of the Generator.
- 6- Prior to start of Eversource construction, all easements must be secured, payment must be received in full and municipal approval must be secured.
- 7- The Generator is responsible that all equipment is tested and operating satisfactorily prior to requesting that Eversource energizes the site. Eversource will not be liable for any damage to Generator equipment.
- 8- Revised plans with additional three line detail & required protective equipment, such as, but not limited to, a customer installed utility grade redundant relay & required effective grounding equipment, must be provided for a review and approval, including submission of product data sheets for review & approval prior to ordering of said equipment

**Appendix G**  
**Attachment 1**

**EDC's Description of its Upgrades and Best Estimate of Upgrade Costs**

Brief description of upgrades:

- 1- New service with primary metering and Recloser

<b>Item</b>	<b>Description</b>	<b>Cost</b>	<b>Notes No.</b>
1.	New Service and recloser	\$212,941	
2.	<b>Subtotal</b>	<b>\$212,941</b>	
3.	CIAC - 9%, (Contribution in Aid of Construction)	\$19,165	
4.	Subtotal with CIAC	\$232,106	
5.	Witness Test	\$2,000	
6.	<b>Total Construction cost</b> Note: Additional escalation cost of 4% will apply per year for payment after 2022	<b>\$234,106</b>	

**TABLE 1**

**General comments:**

1. Line work may require consent from property owners in compliance with CT Statute. The proposed schedule of milestones as outlined in appendix F of the IA assumes that such approval will be secured with no opposition and does not include any delays or legal fees associated with securing such approval.
2. In the event that you are unable to meet the schedule of milestones in appendix F of the IA a revised schedule of milestones will be re-submitted to you. It is important to note that a slip in schedule may not result in an equal delay (one to one delay). Schedules are based on availability of man power, resources and the ability to schedule outages which can be curtailed during the summer season.
3. Price is based on Impact study with an accuracy of +/- 25
4. Escalation cost of 4% will apply per year for payment after 2022.

**Agreed to by:**

Generator



Date: 8/8/2022

Eversource Energy



Date: 08/10/2022



**Attachment II  
Payment Schedule**

<b>Item</b>	<b>Due by Date</b>	<b>Payment Amount</b>
1.	10 months before ISD	\$46,821 (20%)
2.	9 months before ISD	\$93,642 (40%)
3.	8 months before ISD	\$93,642 (40%)
4.	<b>Total Payments Amount</b>	<b>\$234,106</b>

**NOTE – ISD is the developer’s projected In-Service Date. Developer indicated an ISD of 12/29/23 at the time that this agreement was issued.**

**Agreed to by:**

Generator  Date: 8/8/2022

Eversource Energy  Date: 08/10/2022

**Attachment III**  
***Ongoing Costs***

Ongoing Costs will be calculated at the completion of construction based on the percentages shown below. Escalation cost per year is based on the Consumer Price Index (CPI). Taxes may be subject to change based on actual tax base. Refer to IA Section 5.4 of this IA.

<b>DESCRIPTION</b>	<b><i>Ongoing Costs</i></b>	<b>Taxes</b>	<b>% Total</b>	<b>Cost (Estimated)</b>	<b><i>Ongoing Costs</i></b>
Substation Station Equipment	5.66%	2.10%	7.76%	\$0.00	\$0.00
Overhead Conductors & Devices	7.69%	2.10%	9.79%	<b>\$ 45,000.00</b>	\$4,405.00
<b>Total Yearly Amount</b>					<b>\$4,405.00</b>

**Agreed to by:**

Generator



Date: 8/8/2022

Eversource Energy

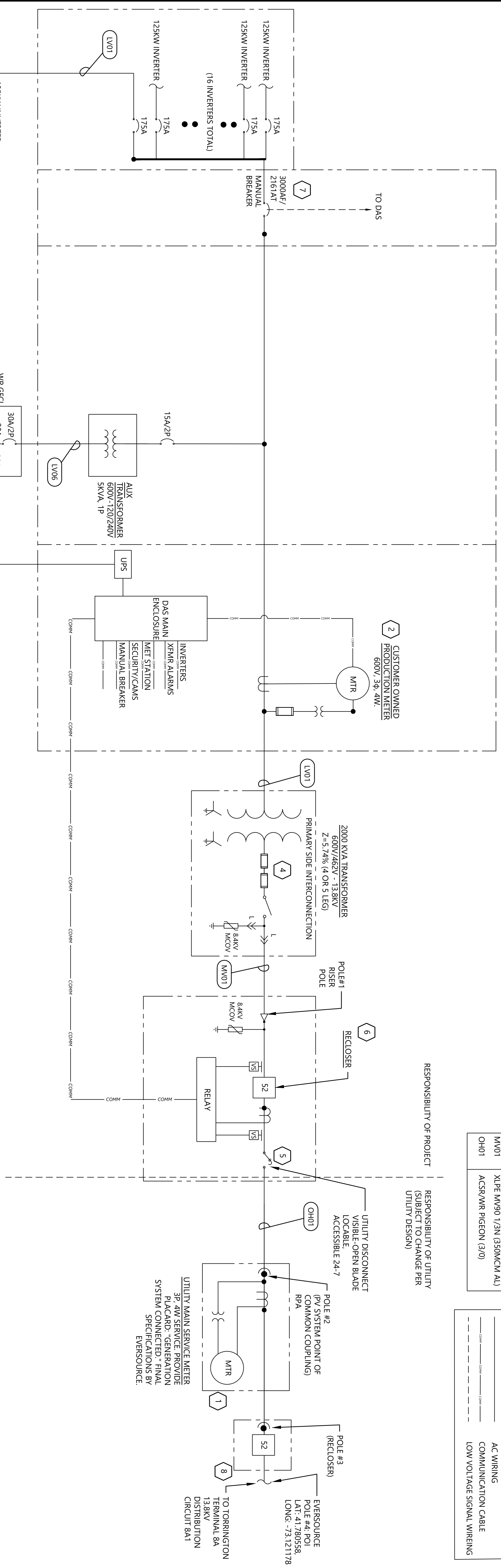


Date: 08/10/2022

## Appendix H

### Project One Line, Site Plan, & Impact Study Results

LVAC COMBINING SWITCHGEAR  
3000A, 600V, 3P, 4W, 65KVA/C, NEMA3R



**WIRE TABLE**

SECTION	TYPE
MW01	XLPE MW90 1/3N (350MCM AL)
CH01	ACSR/WR PIGEON (3/0)

**LEGEND**

- EQUIPMENT ENCLOSURE
- AC WIRING
- COMMUNICATION CABLE
- LOW VOLTAGE SIGNAL WIRING

RESPONSIBILITY OF PROJECT  
(SUBJECT TO CHANGE PER UTILITY DESIGN)

RESPONSIBILITY OF UTILITY  
(SUBJECT TO CHANGE PER UTILITY DESIGN)

# 1 Interconnection OneLine

## GENERAL NOTES

- EQUIPMENT USED SHALL BE UL-LISTED AS PER STANDARDS LISTED BELOW
  - INVERTERS - UL1741 (3-PHASE)
  - PACKAGING - UL2008 OR 3703
  - APPROPRIATE STANDARDS SUCH AS - FER6, OATT, NEC, AND IEEE
- EACH PROJECT SHALL INTERCONNECT WITH EVERSOURCE INDEPENDENTLY UP TO THE POINT OF EVERSOURCE'S REVENUE METER.
- NAME OF CUSTOMER: USS TORRINGTON SOLAR, LLC.
- PROJECT RATED AT 1399 MW AT 1.00 POWER FACTOR.
- BREAKER TERMINATIONS IN SWITCHGEAR SHALL BE HIGH PRESSED CRIMP.
- PROJECT TO BE PRIMARY SIDE INTERCONNECTION.
- THE INTERITE DEVICE CANNOT RESTORE BREAKER BACK IN UNTIL FIVE MINUTE MEASUREMENT OF ACCEPTABLE VOLTAGE AND FREQUENCY AS DEFINED IN IEEE1547-2018 SECTION 4.10.2 (VOLTAGE SHALL BE WITHIN ANSI RANGE B AND FREQUENCY 59.5HZ AND 60.5HZ).

## KEY NOTES

- MAIN SERVICE METER, 3P, 4W SERVICE PROVIDE R1ACARD, "GENERATION SYSTEM CONNECTED" - FINAL SPECIFICATIONS BY EVERSOURCE. CUSTOMER TO PROVIDE AND INSTALL PER EVERSOURCE STANDARD FOR ELECTRIC INSTALLATION AND USE TABLE OF RESPONSIBILITY.
- PRODUCTION METER TO BE REVENUE GRADE.
- DELTA M125HV-US, 125KW INVERTER, 3-PHASE, 600VAC (ONE DERATED TO 124KW) 27 MODULES PER STRING, LONGI SOLAR LRS-75HDB 540W (540W)
- STEP-UP TRANSFORMER, 15kV G-WEG-WVE, 3P, 4W, 95kV BL, Z=5.75% EXPULSION FUSE (TBD), CURRENT LIMITING FUSE (TBD), AND LOAD BREAK DISCONNECT.
- UTILITY AC DISCONNECT, **VISIBLE-OPEN BLADE, LOCKABLE, ACCESSIBLE 24-7**, S&C COMBI-RUPTR GANG OPERATED LOAD BREAK DISCONNECT OR EQUIVALENT.
- POLE MOUNTED RECLOSER, VOLTAGE SENSING REQUIRED ON BOTH SIDES OF SWITCH, SHALL TRIP THE OTHER PHASES OPEN UPON OVERVOLTAGE DETECTION DURING LOSS OF PHASE TEST. COMMUNICATES STATUS TO THE DAS. SEL-751R OR EQUIVALENT. CONTRACTOR TO CONFIRM RELAY SETTINGS AND COORDINATE R1AC COMMUNICATIONS WHEN REQUIRED WITH UTILITY.
- MANUAL BREAKER TO BE READILY ACCESSIBLE AND LOCKABLE.
- UTILITY RECLOSER, POLE# 3.

## PROTECTION SETTINGS

VOLTAGE & FREQUENCY PROTECTION	Recloser Relay		M125HV Inverter			
	Pickup	Delay (sec)	Total Clearing Time* (sec)	Pickup	Delay (sec)	Total Clearing Time* (sec)
Under Frequency (81U2)	56.5 Hz	0.127	0.16	56.5 Hz	-	0.16
Under Frequency (81U1)	58.5 Hz	299.987	300.0	58.5 Hz	-	300.0
Over Frequency (81O2)	62 Hz	0.127	0.16	62 Hz	-	0.16
Over Frequency (81O1)	61.2 Hz	299.987	300.0	61.2 Hz	-	300.0
Under Voltage (27P2) (5% of Vnom-n)	3883.72	1.070	1.103	173.2V	-	1.10
Under Voltage (27P1) (85% of Vnom-n)	7.01134	0.127	2.0	304.84V	-	2.0
Over Voltage (69F1) (110% of Vnom-n)	8.76418	0.127	2.0	381.05	-	2.0
Over Voltage (69F2) (120% of Vnom-n)	9.56092	0.127	0.16	418.69V	-	0.16
[ROV/Overvoltage] (120% of Vnom-n)	-	-	-	418.69V	-	1 ms
[ROV/Overvoltage] (145% of Vnom-n)	-	-	-	484.97V	-	-

\* Total Clearing time based on maximum Eaton Relay operating time of 2 cycles. Inverter power electronics have negligible operating time.

**USS Torrington Solar LLC**  
Litchfield County, Connecticut  
105 Vista Drive  
Torrington, CT 06790

Interconnection  
**Online**

**NOT FOR CONSTRUCTION**

DATE: 02/22/2022  
SHEET: E.200



100 N 6th St #4108  
Minneapolis, MN 55403

#	DATE	COMMENT
A	02/22/22	IA SUBMITTAL REVISION

CUSTOMER OF RECORD: US SOLAR  
LAT: 41.780558  
LONG: -73.121178  
SUBSTATION: Torrington Terminal 8A



DESIGNED:	MM
CHECKED:	DH
DRAWN:	SS
RECORD DRAWING BY/DATE:	04/28/21

**Westwood Surveying & Engineering**  
12311 Wilburton Drive, Suite #300  
Phone: (850) 251-5150  
Fax: (850) 937-5822  
Tollfree: (888) 937-5150  
www.pc.com  
Westwood Surveying and Engineering, P.C.



**USS Torrington Solar LLC, 105 Vista Drive,  
Torrington CT 06790**

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**Distribution System Impact Study  
CD01877**

VAHORA, MOHAMMAD SALMAN I

**Disclaimer:**

**The following project study report is based on the original PV size customer proposed (which was 4MW). Size reduction from 4MW to 2MW will not cause any violations on the distribution system. Hence, there are no additional upgrades required to accommodate the new project size.**

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**Abstract**

This system impact study is to examine the 3.983MW photovoltaic generator proposed on 8A1 105 Vista Drive, Torrington CT. A full circuit impact study is needed for this installation due to it failing the fast-track screen. The study will cover impacts related to voltage, equipment, and protection.

The study found there to be no voltage issues during minimum and maximum loading at the full 3.983MW output of the PV system operating at 100% power factor. The customer will need a new three phase service consisting of a new primary meter and recloser. The DG customer did not cause excess capacitor bank operations. The power quality was determined to be acceptable. The generator did not cause any of the LTC's at the Torrington terminal substations to operate on either the primary or alternate configurations. Fluctuations between states of the generator will be controlled by implementing a standard ramp rate. This will reduce the frequency of large swings in operation and prevent excess operation of voltage regulating equipment on the circuit. The distribution system impact study found that direct transfer trip will not be necessary due to the project passing the dynamic risk of islanding study.

## Introduction

The purpose of this study is to determine the electrical system impacts of a 3.983 MW PV proposed on the Torrington terminal 8A1 feeder. The electrical system impacts considered in this study are voltage, equipment, and protection concerns. Recommendations will be based on assurance that all the customers fed from this circuit, and adjacent alternate circuits, are within the established ratings for voltage and that fault protection is enough. The Torrington terminal 8A1 was chosen for ease of interconnection at 105 Vista Drive, Torrington CT.

## Project Location

US Solar is proposing the installation of a 3.983MW PV generator at their site in Torrington, CT. This project will be located on the low side of the Torrington terminal 8A1 substation, on the 8A1 circuit at 105 Vista Drive, Torrington CT. The PV project site is approximately 0.47 miles away from the Torrington terminal 8A1 substation. The site plan for the project shown below in Figure 1 illustrates the location of the PV system and how it will connect to the 8A1 circuit. A picture illustrating the distance of the project site to the Torrington terminal 8A1 substation can be found in Appendix A.

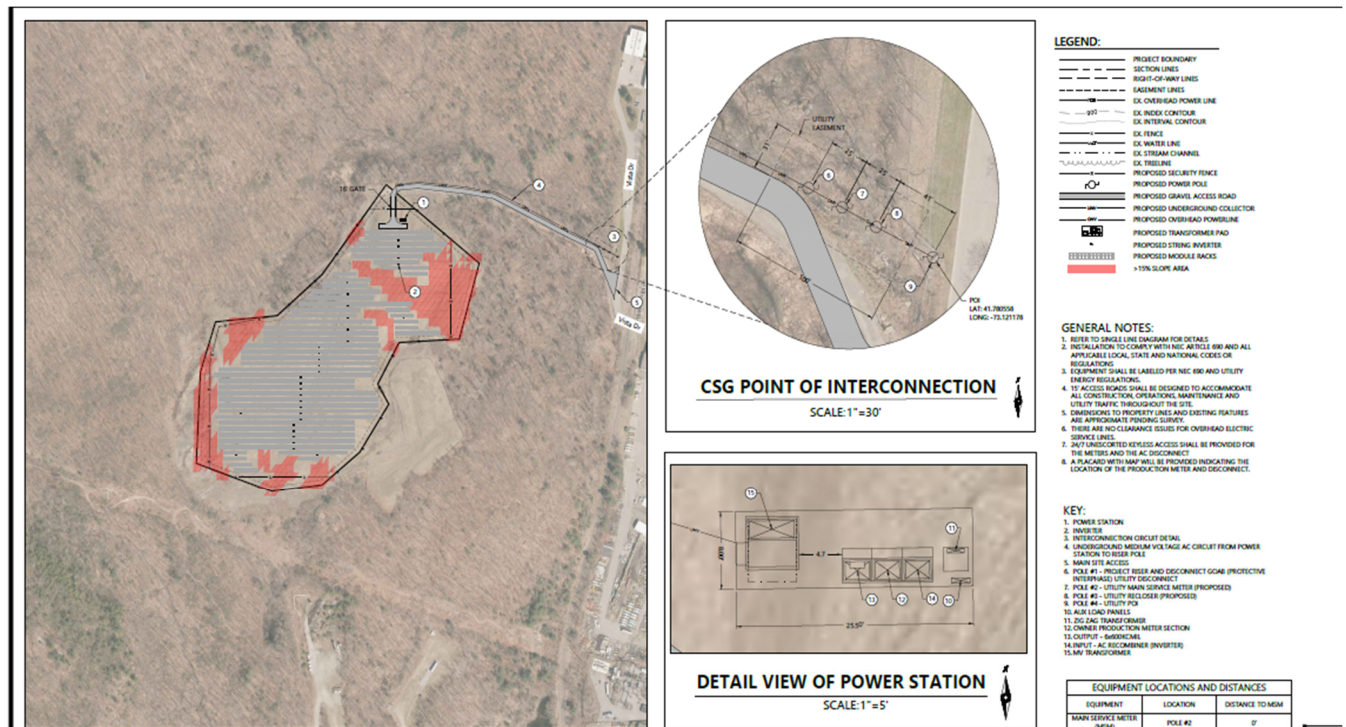


Figure 1: Site plan for USS Torrington Solar LLC, 105 Vista Drive, Torrington CT 06790



### System Configuration

The primary distribution voltage of the customer is 13.2 kV. The customer will fully export onto the Eversource distribution system. The Torrington terminal 8A1 feeder has around 5.0 MW of existing generation or in queue ahead on the 8A1 circuit. The system was modeled using Synergi™ Electric, with a 98% power factor during maximum and minimum load for the 8A1 source circuits. The loads were allocated per circuit feeder head prior to analysis. The proposed system was modeled with a unity power factor. Simulations during minimum and maximum loading periods were studied, with the proposed system on and off. The existing generation always remained on due to no generation falling within one quarter of a mile from the proposed DG project at 105 Vista Drive, Torrington CT. Day time peak and daytime minimum peak were the studied scenarios for this DG application. During each loading scenario, voltage flicker and rapid voltage change were analyzed in addition to steady state voltages as a result of this distribution system impact study. During those simulations, voltage and power factor were verified to ensure the circuit still meets regulatory standards after the proposed system is interconnected.

### System Loading and Assumptions

The Torrington terminal 8A substation is fed from two 115kV transmission lines and consists of one 115kV step down transformer for the A5 bus and is rated for 26.7 MVA. The 8A-5X steps the voltage down to 13.2 kV bus that feeds three circuits.

The loading information for the primary configuration is as follows. The Torrington terminal 8A-5X transformer has a peak load of 10.246 MVA and a daytime minimum load of 4.83 MVA. The 8A-5X transformer feeds the 8A1, 8A2 and 8A3 feeder.

Table 1: Generation and Load Data				
Source	Maximum Load (MVA)	Minimum Load (MVA)	Existing Generation (MW)	Proposed Generation (MW)
8A-5X	10.246	4.83	1.629	4.415
8A1	5.38	2.268	0.949	4.055

**Generation Characteristics:**

Table 2: PV Generator Characteristics	
Generating Facility Phase Type:	Three-Phase
Power Rating:	3.983 MW
Generating Facility Output Voltage (Volts):	13.2 kV
Generating Facility Terminal Voltage (Volts):	600 V
Rated Output Current (Amps):	174.41 Amps at 13.2 kV
Frequency (Hz):	60 Hz
Rated Power Factor (%):	TBD during Study
Inverter Power Factor Adjustment Range:	0.8 Lag – 0.8 Lead

**Voltage Impact During Normal Operation | Torrington terminal 8A1**

CT regulatory requirements require adherence to voltages at -5% to +5% PU. The modeling software uses a nominal voltage of 120 as the output, so the voltages from the model will need to stay between 114 and 126 V. This portion of the study determines if the interconnection can maintain these requirements at peak and minimum loading conditions. The study looks at both peak and minimum loading during time in which the generator is in parallel with the Eversource system. All circuits fed by the 8A-5X transformer were modeled for this analysis.

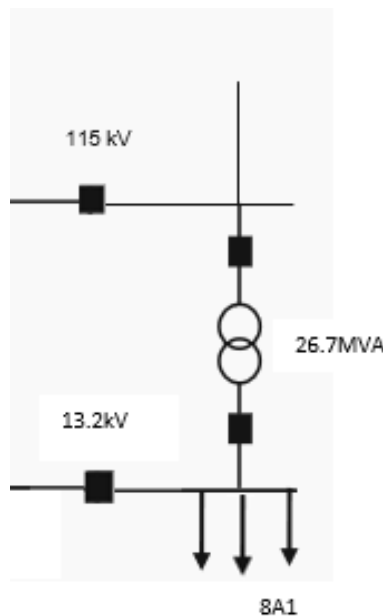


Figure 2: Primary Configuration

Peak Loading

At peak loading steady state conditions, with generation at unity power factor and the customer generation connected, the system can sustain voltage within the PURA limitations. The system does not cause any voltage or thermal issues throughout the model.

Table 3: Peak Load									
Circuit Point	Generation Off			95% Generation- Hold Taps			Generation 100% - Steady State		
PCC (V) 8A1	122.2	122.5	122.5	123.3	123.5	123.5	123.1	123.3	123.4
8A1 Feeder Head (V)	122.6	122.7	122.6	123.1	123.1	123.1	122.9	123	123
8A1 Feeder Head (kW)	3243	3167	3075	--	--	--	1692	1550	1470
8A-5X Transformer (kW)	5562	5345	5455				3804	3628	3538
8A1 Feeder Head (kVAR)	-43	-61	-81	--	--	--	-74	-107	-127
8A-5X Transformer (kVAR)	379	339	337				329	289	268
Power Factor at 8A-5X	99.9	99.8	99.9	--	--	--	99.9	99.8	99.6

*Generation Off*

During this simulation, the proposed PV was turned off while all existing PV remained at full output. As shown in Table 3, above, all voltages readings were within the PURA limitations.

*Generation On*

Under this simulation, all generators, including the proposed generator, were turned on. As shown in Table 3, all voltages were within the PURA limitations.

*Generation at 95% - Flicker*

Under this simulation, steady state system was locked into place with the proposed PV off. The capacitor banks and regulators in the model were then locked into place. The DG was then turned on to 95%, per Eversource standards. The voltage values were recorded, and the flicker was calculated. The flicker and voltages were acceptable remaining within the ANSI limits for voltage and within the 2% limit spelled out in the Eversource standards as shown in Table 4. It should be noted that the fluctuation in output only occurred with the proposed DG. Eversource typically considers DGs within 0.25 aerial miles of the project. The nearest projects were greater than this distance and did not play a role in the system flicker calculation. Under normal circuit configurations and having all capacitor banks in service, the maximum flicker occurred at 0.90%. Table 4 below illustrates the flicker on all three phases during peak load.

Table 4: Peak Load Flicker Change			
Phase	A	B	C
PCC	0.90%	0.82%	0.82%

*Rapid Voltage Change*

For flicker issues, Eversource can mitigate the issue by requiring the DG to install a ramp rate for the introduction of generation after the loss of generation due to a cloud or transient. However, this does not resolve the issue of the impacts to the Eversource distribution system when the DG is taken offline. IEEE 1547-2018 spells out that the rapid voltage change from a DER should not exceed 3%. As shown in Table 5, all rapid voltage change values are within the IEEE 1547-2018 limit of 3%., the maximum RVC occurred at 0.08%. Table 5 below illustrates the RVC on all three phases during peak load.

Table 5: Peak Load Rapid Voltage Change			
Phase	A	B	C
PCC	0.08%	0.08%	0.08%

Minimum Loading

At daytime minimum loading steady state conditions, with generation at unity power factor and the customer generation connected, the system can sustain voltage within PURA limitations on all circuits associated with the Torrington terminal 8A-5X configuration. For the minimum load simulation all the voltage control cap banks were turned off. The system does not cause high voltage at the PCC; or elsewhere along the 8A1 circuit.

Table 6: Min Load 36%									
Circuit Point	Generation Off			95% Generation- Hold Taps			Generation 100% - Steady State		
PCC (V) 8A1	122.2	122.3	122.3	123.6	123.7	123.6	123.6	123.7	123.6
8A1 Feeder Head (V)	122.1	122.2	122.2	123.3	123.3	123.3	123.3	123.3	123.3
8A1 Feeder Head (kW)	1204	1166	1144	--	--	--	-357	-457	-464
8A-5X Transformer (kW)	2068	1970	2033				302	246	115
8A1 Feeder Head (kVAR)	-458	-466	-481	--	--	--	161	150	136
8A-5X Transformer (kVAR)	-726	-742	-749	--	--	--	297	284	272
Power Factor at 8A-5X	93.5	92.9	92.2	--	--	--	91.1	95.1	96

*Generation Off*

During this simulation, the proposed PV was turned off while all existing PV remained at full output. As shown in Table 6, above, all voltages readings were within the PURA limitations.

*Generation On*

Under this simulation, all generators, including the proposed generator, were turned on. As shown in Table 6, all voltages were within the PURA limitations.

*Generation at 95% - Flicker*

The same analysis for voltage flicker was studied during light load conditions. Table 7 below illustrates the voltage flicker. The voltage flicker stays within the 2% threshold with the worst-case scenario at 1.15%.

Table 7: Peak Load Rapid Voltage Change			
Phase	A	B	C
PCC	1.15%	1.14%	1.06%

*Rapid Voltage Change*

The same analysis for rapid voltage change was studied during light load conditions. Table 8 below illustrates the rapid voltage change. The rapid voltage change stays within the 3% threshold with the worst-case scenario at 0.24%.

Table 8: Peak Load Rapid Voltage Change			
Phase	A	B	C
PCC	0.16%	0.24%	0.16%

**Regulators and Capacitors**

The 8A1 circuit does not have any capacitors but does have a set of voltage line regulators at the feeder head. The below tables illustrate the regulator and LTC operations that were experienced under the above load flow scenarios. Any capacitor bank operations will be noted as well.

Primary Configuration: 8A1-5X Transformer

Table 9, below, illustrates the regulator tap positions and substation LTC positions before and after the PV system was put into the model.

Table 9: Regulator/LTC Tap Changes Peak Load									
Circuit Point	Generation Off			Generation 100% - Steady State			Tap Changes		
8A1	0	0	0	0	0	0	0	0	0

As seen below, in Table 10, the regulator and LTC both stayed at their same tap positions with the addition to this project under minimum load.

Table 10: Regulator/LTC Tap Changes Min Load 36%									
Circuit Point	Generation Off			Generation 100% - Steady State			Tap Changes		
8A1	0	0	0	0	0	0	0	0	0

### Dynamic Analysis (PSCAD)

The Torrington Terminal 8A feeder was modeled in the time domain in PSCAD using circuit impedance and load data extracted from the steady-state Synergi models. The impact of this generator on transient overvoltage was studied. The results show there were no transient overvoltage violations in all scenarios.

### Load Rejection Overvoltage

Load Rejection Overvoltage (LROV) occurs when an upstream isolation device opens while the generator is outputting power, causing a spike in voltage at the point of interconnection and elsewhere on the circuit. One LROV scenario was modelled where the feeder circuit breaker opens. This is a conservative simulation that simulates a worst-case failure of selectivity of all protective devices on the feeder such as upstream reclosers. The results of the simulation can be seen in Table 11.

IEEE Voltage Limit	IEEE Limit (ms)	A-Phase	B-Phase	C-Phase
1.2 per-unit	166	0.00	0.00	0.00
1.3 per-unit	16	0.00	0.00	0.00
1.4 per-unit	3	0.00	0.00	0.00
1.7 per-unit	1.6	0.00	0.00	0.00
2.0 per-unit	0	0.00	0.00	0.00

### Ground Fault Overvoltage

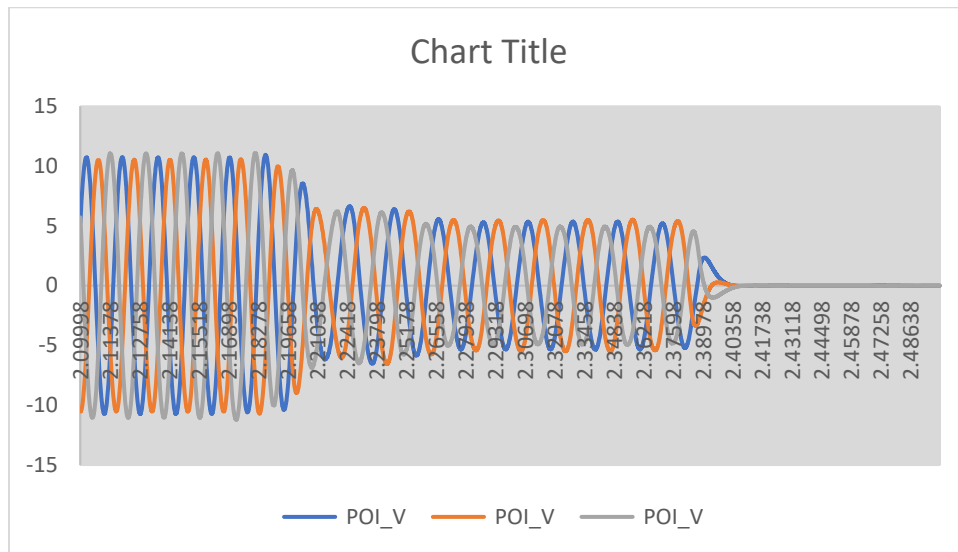
Ground Fault Overvoltage is simulated by creating a single-phase-to-ground fault at the point of interconnection on the highest loaded phase, and then isolating this fault after ten cycles (166.7 ms) by opening an upstream isolation device. The upstream device that was opened was the feeder circuit breaker. This is a conservative simulation that simulates a worst-case failure of selectivity of all protective devices on the feeder such as upstream reclosers. The results of the simulation can be seen in Table 12.

IEEE Voltage limit	IEEE Limit (ms)	A-Phase	B-Phase	C-Phase
1.2 per-unit	166	0.00	41.64	0.00
1.3 per-unit	16	0.00	0.88	0.00
1.4 per-unit	3	0.00	0.00	0.00
1.7 per-unit	1.6	0.00	0.00	0.00
2.0 per-unit	0	0.00	0.00	0.00

Risk of Islanding

Due to the amount of back feed at each of the impacted feeder breakers, the project underwent a dynamic study. During the dynamic study, in PSCAD, a detailed risk of islanding analysis was performed.

Below graph shows after the feeder breaker opens the voltage at POI drop to zero in 0.24 seconds. Which is within the two seconds limitation. So, it was concluded that there was no risk of islanding for the proposed project on the 8A1 circuit.



Please refer to Appendix B for load rejection over voltage (LROV) protection compliances.



## System Upgrades and Service

### Primary Feed 8A1

The customer will need a new three phase service consisting of a recloser and one primary meter.

It was determined that system upgrades are necessary for the installation of this DG. The project will need the following:

- Site dedicated recloser
- Primary Meter (1)

### Protection Study

P&C concluded that the system needs additional effective grounding measures. When the project goes to construction a coordination study will be conducted. The customer is expected to follow the Eversource inverter and relay settings. The typical settings mandated by ISO-NE are shown below in Figure 5.

One major aspect related to protecting the proposed system and electric grid, is whether the system is effectively grounded. Below describes the four (4) main criteria looked at to ensure the system is effectively grounded. All four (4) criteria must pass to be deemed effectively grounded.

1. Is the DG less than one (1) megawatt (MW)? **\*FAIL**
2. Does the proposed system pass the anti-islanding concern or in other words, does it pass the generation to load ratio requirement? **\*YES**
3. Does the fault current at the point of common coupling (PCC) stay below a value that's greater than 10% of the existing value? **\*YES**
4. Is the proposed area unknown to excessive fault currents? **\*YES**

Since the system failed One (1) of the four (4) effective grounding conditions, the customer will be responsible for providing additional effective grounding on the 3.983 MW PV installation.

## **Conclusion**

US Solar LLC has requested to interconnect an aggregate of 3.983 MW of inverter-based PV generation to the low side of the Torrington terminal 8A substation on the 8A1 feeder at 13.2 kV. The system will be located approximately at 105 Vista Drive, Torrington CT which is located approximately 0.47 circuit miles from the Torrington terminal 8A substation. The project did not cause any adverse impacts to customer voltages or power quality. The DG did not cause excess capacitor bank or LTC operations. Their operation will be managed by implementing a ramp rate on the project, standard practice for Eversource to eliminate any voltage flicker. With the approval from P&C and substation engineering this project will be able to connect to the Eversource EPS with the installation of the required upgrades listed in the system upgrades and service section above.

Appendix C

C.1. 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

C.2. 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

C.3. 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
$1.175 < V \leq 1.20$	Permissive Operation	0.2	N/A
$1.15 < V \leq 1.175$	Permissive Operation	0.5	N/A
$1.10 < V \leq 1.15$	Permissive Operation	1	N/A
$0.88 \leq V \leq 1.10$	Continuous Operation	infinite	N/A
$0.65 \leq V < 0.88$	Mandatory Operation	Linear slope of 8.7 s/1 p.u. voltage starting at 3 s @ 0.65 p.u.: $T_{VRT} = 3 s + \frac{8.7}{1 \text{ p.u.}} (V - 0.65 \text{ p.u.})$	N/A

$0.45 \leq V < 0.65$	Permissive Operation <sup>12</sup>	0.32	N/A
$0.30 \leq V < 0.45$	Permissive Operation	0.16	N/A
$V < 0.30$	Cease to Energize	N/A	0.16

C.4. 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	
$61.2 < f \leq 61.8$	Mandatory Operation	299
$58.8 \leq f \leq 61.2$	Continuous Operation	Infinite
$57.0 \leq f \leq 58.8$	Mandatory Operation	299
$f < 57.0$	No ride-through requirements apply to this range	

C.5. 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

Figure 5 Smart inverter settings excerpt from Appendix C of Exhibit B – Generator Interconnection Technical Requirements



## **Appendix B:**

### **Distributed Generation Transient Overvoltage**

#### **Policies**

#### **Section 19–1.2.4**

#### **19.015**

Eversource Energy Distribution System Engineering Manual  
April 2020

#### **GENERAL**

Recent studies have shown that large-scale inverter-based distributed energy resources (DER) have shown that transient overvoltage is of concern due to load rejection overvoltage (LROV) by the inverters. This standard spells out the interim practice that Eversource distribution engineering will undergo while testing standards are updated to meet compliance with *IEEE 1547–2018*.

*Note:* This policy is applicable to all four operating companies: CT, WMA, EMA, and NH; unless noted otherwise.

#### **NEW DER FACILITIES**

The following practices must be adhered to for future DER impact studies. The following language shall be

included in future distribution system impact studies:

*Based on recent DER studies performed by Eversource, it has been determined that transient overvoltage is of concern due to potential load rejection overvoltage (LROV) by the inverters. There is concern that during step changes in load (such as tripping of an upstream device), the proposed inverters may cause transient over voltages in excess of 1.2pu, which can potentially cause damage to the customer's equipment, utility equipment, and/or nearby customer equipment. Due to this concern, Eversource requires that the customer demonstrate that the inverters limit their cumulative overvoltage according to the transient overvoltage curve in IEEE Std. 1547–2018 clause 7.4.2. If the inverters do not demonstrate compliance to the curve given in the standard, additional utility upgrades may be required to mitigate the overvoltage. All documentation shall include the applicable firmware version(s). The correct firmware version shall be demonstrated by the customer during witness testing/final review.*

Additionally, the DER developer may demonstrate compliance in one of the following ways:

1. Providing a copy of the most recent HECO qualified equipment list highlighting the inverter make/model and firmware that meets the above requirements.

[https://www.hawaiianelectric.com/documents/clean\\_energy\\_hawaii/qualified\\_equipment\\_list.pdf](https://www.hawaiianelectric.com/documents/clean_energy_hawaii/qualified_equipment_list.pdf)

2. Providing documentation that the inverter(s) have passed the Hawaiian Electric Companies (HECO) test

procedure for transient overvoltage qualifications, as evaluated by a Nationally Recognized Testing Laboratory (NRTL).

[https://www.hawaiianelectric.com/documents/products\\_and\\_services/customer\\_renewable\\_programs/appendix\\_1\\_trov2\\_qualify\\_instructions.pdf](https://www.hawaiianelectric.com/documents/products_and_services/customer_renewable_programs/appendix_1_trov2_qualify_instructions.pdf)

3. Providing a letter from the inverter manufacturer indicating that the proposed inverter is capable of and set to trip for no higher than 1.4pu voltage in 1ms or less clearing time.

4. Other means proposed by the customer/inverter manufacturer may be acceptable on a case-by-case basis.

