EVERSOURCE

Project Approval Form

Project Title: [redacted]	Project Number: CD01823
Date Prepared: 05/08/2025	**Company:** Eversource CT
Organization: Electric System Operations	**Project Category:** Distributed Generation
Project Initiator: [redacted]	**Project Type:** Specific
Initiating Organization: Distribution	**Capital Investment part of original Op Plan:** Yes
Project Manager: [redacted]	**Emergency Related Request?** No
Project Sponsor: [redacted]	**Facility Type** (check all that apply)**:** ☐ PTF ☐ non-PTF ☒ Distribution ☐ N/A (General Plant)
Required in service date: October 1, 2025	**NWS Excludable:** ☒ Yes ☐ No
Total Capital Request: $221K (100% reimbursable)	**Authorization Type:** Full Funding

1. Executive Summary

- [redacted]
- A distribution system impact study determined that the proposed project would need [redacted]
- The DER will not be able to operate on alternate feeder configurations, which is consistent with CD01163, CD01420, and CD01682.
- The DER will be required to operate in a ramp rate, consistent with other DER projects to mitigate flicker concerns. In addition, the DER will be required to operate with their Volt/VAR settings **enabled** to mitigate any high voltage that may be present during lightly loaded conditions.
- This project is 100% reimbursable by the customer.
- Project Location

- Division: Central
- District: Tolland AWC
- City/Town: East Windsor

- The Partial Funding estimate for this project was $193K and was approved at the 4/21/22 CTPAC.
- The full funding estimate is $221K; a $28K increase (14.5%). There was no change in project scope and the price increase was due to additional cost of labor and material inflation.

2. Project Cost Summary

Note: Dollar values are in thousands.

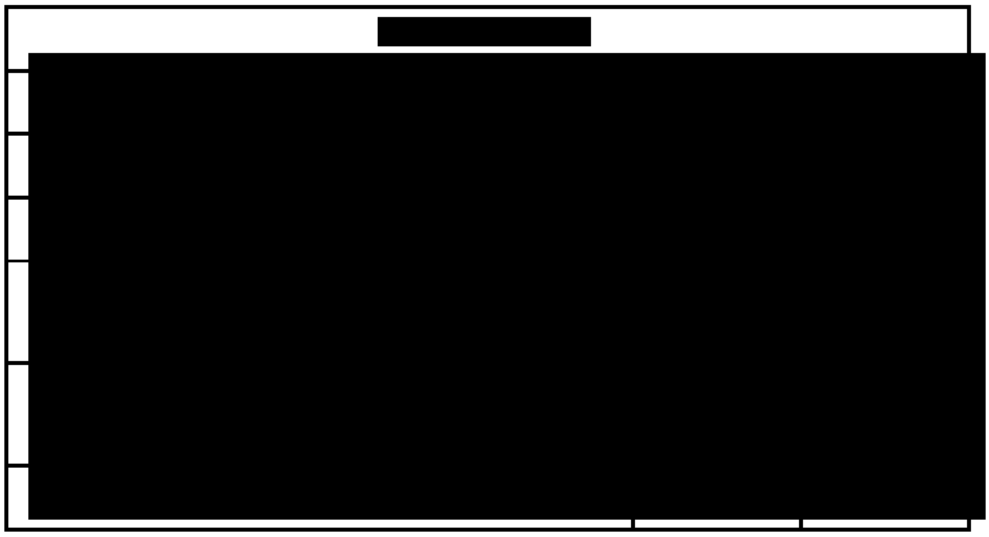
Capital Costs	Year 2025	Total
Direct Capital Costs		
Internal Labor and Construction Equipment	17	17
Outside Services	0	0
Materials	100.7	100.7
Removals	3.3	3.3
Risk and Contingency	0.0	0.0
Other	0	0
Subtotal – Direct Costs	**121**	**121**
Indirect Capital Costs		
Indirect/Overheads (including benefits)	100	100
Capitalized interest or AFUDC, if any	0.0	0.0
Subtotal – Indirect Costs	**100**	**100**
Total Gross Capital Costs	**221**	**221**
Customer Contribution	**-221**	**-221**
Total Net Capital Project Costs	**0**	**0**

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

- The DER applicant is proposing a new service at their photovoltaic facility located on Thrall Rd., East Windsor, CT. There is currently no electrical service to the proposed solar farm.



b. Project Need

- The DER customer, [redacted], has requested Eversource to determine the impact of its generator on the area EPS. The distribution system impact study on the [redacted]

- This project is proposing a new site-dedicated recloser and one primary meter. A new, three phase service will be required on Thrall Road between existing poles 2090 and 2091.

c. Project Scope

The scope of the project is as follows:

- [redacted]
- [redacted]
- **Major Material:**
  - 1 Recloser
  - 450 ft. of 556 AAC TW

4. Alternatives Considered

NWS Exclusion Criteria (select all that apply)

☐ Project cost < $250k	☐ New Service
☐ CDOT Relocation	☒ Generator interconnection project
☐ Maintenance, Asset condition or safety related*	

Option Summary

[redacted]

5. Project Schedule

Add any additional milestones that are pertinent to the project

Milestone/Phase Name	Estimated Date
Partial Approval	4/21/2022
100% Detailed Engineering Completion	2/12/25

Milestone/Phase Name	Estimated Date
Fully Funded	5/9/25
Construction Start	9/1/25
In Service Date	10/1/25

6. Regulatory Decisions

N/A

7. Codes and Standards

N/A

8. Risk and Contingencies

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2025	Low	Standard new service of site-dedicated recloser and primary meter. Scope of feeder work is minimal.
Customer Permission / Siting Council / Municipal approvals/ Wetlands Permitting	2025	Low	Minimal work is required is required on the Eversource feeder and therefore permissions should be minimal. Scope of work is in front of existing parcel. Eversource does not anticipate getting push back to move the step bank.
Internal construction resources not available to perform the work.	2025	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost. Construction is over one year out.
Materials Shortage or long lead times	2025	Low	Pre-order long lead time material; minimize the use of non-standard and non-stocked material. Primary meters

			are longest lead time item and enough time exists to order (4-6 months).
Storm delays	2025	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2025	Low	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.

9. References

N/A

10. Attachments (One Line Diagrams, Images, etc.)

Attachment	Included in Submittal?
A. Partial Funding PAF	*YES*

Attachment E. Partial PAF

Operations Project Authorization Form

Project Title: [redacted], East Windsor	**Project Number:** CD01823
Date Prepared: 04/15/2022	**Company:** Eversource CT
Organization: Electric Field Operations	**Class(es) of Plant:** D Line
Project Initiator: [redacted]	**Project Category:** Distributed Generation
Project Manager: [redacted]	**Project Type:** Specific
Project Sponsor: [redacted]	**Capital Investment part of original Operating Plan:** No
Estimated in service date: December 31, 2023	**Emergency Related Request?** No
Eng./Constr. Resources Budgeted? No	**Facility Type** (check all that apply): ☐ PTF ☐ non-PTF ☒ Distribution
Total Gross Capital Request: $193K	**Authorization Type:** Initial Funding

Executive Summary

The purpose of this request is to approve the ENG estimate of $193K which is 100% reimbursable. This ENG estimate includes a 24% contingency for a projected December 31, 2023 in service date. Additional costs including, but not limited to, CIAC will be added to the Interconnection Agreement (IA). Refer to the project cost summary section for more details.

[redacted]

The DER will not be able to operate on alternate feeder configurations, which is consistent with CD01163, CD01420, and CD01682.

The DER will be required to operate in a ramp rate, consistent with other DER projects to mitigate flicker concerns. In addition, the DER will be required to operate with their Volt/VAR settings **enabled** to mitigate any high voltage that may be present during lightly loaded conditions. The backbone is all 556 TW, and no larger standard conductor is available to stiffen the circuit.

Project Costs Summary

Capital Costs	Year 2022	Year 2023	Year 2024+	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	$4	$0	$0	$4
Outside Services	$98	$0	$0	$98
Materials	$11	$0	$0	$11
Removals	$4	$0	$0	$4
Risk and Contingency	($0)	$0	$0	($0)
Other	$0	$0	$0	$0
Subtotal – Direct Capital Costs	**$116**	**$0**	**$0**	**$116**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	$76	$0	$0	$76
Capitalized interest or AFUDC, if any	$0	$0	$0	$0
Subtotal – Indirect Capital Costs	**$76**	**$0**	**$0**	**$76**
Total Capital Project Costs (Gross)	**$193**	**$0**	**$0**	**$193**
Total Customer Contribution	**($193)**	**$0**	**$0**	**($193)**
Total Capital Project Costs	**$0**	**$0**	**$0**	**$0**

Full Scope of Costs to be included in IA:

Distribution cost	$201,908
Witness Test	$2,000
Substation Work	$0
CIAC 9%	$18,172
TOTAL COST	**$222,080**

Technical Justification:

Project Need, Objective and Justification

The DER customer, [redacted], [redacted], has requested Eversource to determine the impact of its generator on the area EPS. The distribution system impact study on the [redacted] feeder [redacted]

This project is proposing a new site-dedicated [redacted]

Project Scope

The following table includes all the projects online and queued that were considered as part of this SIS:

Upgrades [redacted]

- [redacted]
- [redacted]

Major Material:

- Eversource will need to procure a site dedicated recloser and one primary meter.

Below is a breakdown of total equipment necessary to install both projects:

- # Reclosers installed: **One**
- # Switchgear units installed: **NA**
- # Eversource poles installed: **3**
- # Frontier poles installed: **NA**
- # Manholes installed: **NA**
- Overhead conductor: **556 AAC TW, approximately 450 feet**
- Underground conductor: **NA**

Background

The DER applicant is proposing a new service at their PV facility located at [redacted], [redacted] The customer will be responsible for all electric design on the load side of the Eversource-owned primary meter.

Alternatives Considered:

Alternatives were considered (please describe below)

[redacted]

Regulatory Approvals:

No

No regulatory approvals are anticipated at this time for the Eversource work. The PV project itself will require CT Siting Council approval.

Project Schedule

Milestone/Phase Name	Estimated Date
Preliminary Engineering	4/21/2022
Detailed Design	TBD
Construction	TBD
Anticipated In Service Date	12/31/2023

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2023	Low	Standard new service of site-dedicated recloser and primary meter. Scope of feeder work is minimal.
Customer Permission / Siting Council / Municipal approvals/ Wetlands Permitting	2023	Low	Minimal work is required is required on the Eversource feeder and therefore permissions should be minimal. Scope of work is in front of existing parcel. Eversource does not anticipate getting push back to move the step bank.
Internal construction resources not available to perform the work.	2023	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost. Construction is over one year out.

Internal engineering resources not available to perform the work.	2023	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost. Scope of work is straight forward and standard, internal resources should be able to support a new service design and relocation of a step bank.
Materials Shortage or long lead times	2023	Low	Pre-order long lead time material; minimize the use of non-standard and non-stocked material. Primary meters are longest lead time item and enough time exists to order (4-6 months).
Storm delays	2023	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2023	Low	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.
Technological risks involving integration of new technology	2023	Low	Before use of new technology ensure support of standards and manufacture. Schedule project to accommodate for extra time or ensure new technology is not on the critical path. All equipment to be installed is approved by Standards.
Wetlands / Environmentally sensitive area	2023	Low	The new service will be from an existing street ROW. Wetland/environmental should not be an issue.

References

Appendices (One-Line Diagrams, Images, etc.)

Application Documents:

Interconnection Application:

DocuSign Envelope ID: 5771C08F-E2C9-4DA7-9622-FD870A15C2C2

EVERSOURCE

Interconnection Application

Customer Information:
Name [redacted]
Company [redacted]
Address [redacted]
City/State/Zip Code: East Windsor, CT 06016
E-mail Address [redacted]
Phone [redacted]

Customer Billing Account Number:
Meter Number

Applicant information:
Company: [redacted]
Name: [redacted]
Address [redacted]
City/State/Zip Code: Hartford, CT 06103
E-mail Address [redacted]
Phone: [redacted]

Contractor/Installer:
Company [redacted]
Name [redacted]
Address [redacted]
City/State/Zip Code: Hartford, CT 06103
E-mail Address [redacted]
Phone: [redacted]

System Owner/Operator:
Company [redacted]
Name [redacted]
Address [redacted]
City/State/Zip Code: Hartford, CT 06103
E-Mail Address: [redacted]
Phone: [redacted]

Are you in the process of performing a service upgrade?: No

Estimated In Service Date: 7/1/2022

Generator Info:
PV System Nameplate AC Rating: 3987.8

DocuSign Envelope ID: 5771C08F-E2C9-4DA7-9622-FD870A15C2C2

PV System Equipment: Inverter: 32 x Yaskawa Solectria Solar 124.6 kW (Model XGI 1500-125/150 (600V) [SI1])

Battery Backup: No
Battery KW Rating:

System Nameplate AC Rating (non PV):
Inverter Manufacturer (non PV):

Generator Type: Inverter
Technology Type: PV
Fuel Type: Solar
Phases: Three Phase

Interconnection Customer Signature

I have read the Guidelines for Generator Interconnection – Fast Track and Study Processes or Guidelines for Interconnection of Residential Single Phase Certified Inverter Based Generating Facilities of 20 kW (ac) or Less and agree to abide by all terms and conditions as provided for in these Guidelines. I understand that my Interconnection Request may be rejected by the Interconnecting EDC or there may be a delay in processing my Interconnection Request if the Interconnecting EDC determines that I have not complied with these Guidelines.

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

ACKNOWLEDGED AND AGREED TO BY: CUSTOMER-GENERATOR

[redacted]
Print Name

DocuSigned by:
[redacted]
Signature

3/8/2021
Date

Eversource Energy
Attention: Eversource CT DG
P.O. Box 1409
Hartford, CT 06143-1409

Site Plan:



One-Line:

Project Approval Form



System Impact Study Documents:

Project Approval Form

CD01823

[redacted]

History of Revisions
R0: 3/14/2022

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Abstract

[redacted]. A full circuit impact study is needed for this installation. The study will cover impacts related to voltage, equipment, and protection. Additional dynamic studies are being performed in parallel to determine the impact and risk of transient overvoltage (TOV), load rejection overvoltage (LROV), and ground fault overvoltage. These studies are being performed in PSCAD. These studies are required due to the significant amount of back feed on the[redacted]. The original project size was 4 MWs; but, has since downsized due to thermal overloads of the 556 TW and getaway cables out of [redacted]

The study found there to be no voltage issues during minimum and maximum loading at the reduced 2 MW output of the PV system operating at 100% power factor with the Volt/VAR settings on the inverters **enabled**. During light load conditions there was the possibility of high voltage. 3V0 is not required and was already determined under previous DER studies on [redacted]. The customer will need one new primary service at [redacted].

Power factor was degraded during peak load for the primary feed and during light load for the N-1 scenario. No mitigations were suggested in previous impact studies for lower power factor at the[redacted] transformers. The generator did not cause any excess operation of the LTC's at the[redacted] substation on either the primary or alternate configurations. The generation to minimum load ratio exceeded 100% triggering the need to perform a dynamic study to investigate LROV and TOV. The distribution system impact study found that direct transfer trip will not be necessary due to the project passing the Sandia risk of islanding screening.

The project will be required to operate in a Volt/VAR mode to mitigate any potential over voltages that may exist.

Introduction

The purpose of this study is to determine the electrical system impacts of a revised 2 MVA PV proposed on the existing [redacted] feeder. Given the project is in the first zone outside of the substation, no alternate feeds were studied. The project will be offline for alternate feeder configurations, consistent with the other utility-scale DERs in this zone of the [redacted] feeder. The impacts were also studied on alternate substation configurations at the [redacted] substation if one of the transformers were to go out of service (OOS). 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 the [redacted] substation, and adjacent alternate configurations, are within the established ratings for voltage and that fault protection is enough. The [redacted] substation was chosen for ease of interconnection as the proposed project site is located adjacent to the existing [redacted] feeder.

Project Location

[redacted]. Refer to Appendix A for a map illustrating the route. [redacted]. Note that the below picture illustrates the footprint for the original 4 MW project.



Figure 1: Site plan for Verogy, Thrall Road

System Configuration

[redacted]. The loads were allocated per circuit feeder head prior to analysis. The proposed system was modeled with a unity PF. Simulations during minimum and maximum loading periods were studied, with the proposed system on and off. During daytime analysis (peak load and minimum day time peak load) all generation was on for analysis. During those simulations, voltage and power factor were verified to ensure the circuit still meets regulatory standards after the proposed system was interconnected.

System Loading and Assumptions

[redacted]:

Table 1: Generation and Load Data

Source	Maximum Load (MVA)	Minimum Daytime Load (MVA)	Existing Generation (kW)	Proposed Generation (kW)
[redacted]	32.495	12.375	2,537	710
	27.495	7.441	16,655	18,718
	10.7	2.586	13,622	16,614

Generation Characteristics:

Table 2: PV Generator Characteristics	
Generator Manufacturer:	Yaskawa Solectria Solar
Generator Model:	XGI 1500-125/150 (600V)
Phase:	Three
Max AC Power Output Total:	2000 kVA
Nominal AC Output Voltage:	600v
Max Continuous Output Current:	50 A @23kV
Power Factor:	1.0
Frequency:	60Hz

Voltage Impact During Normal Operation | [redacted]

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 PU. 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 from the [redacted] substation 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
[redacted]			

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

Generation On
Under this simulation, the generator was turned on while all the other generation remained at 100% export. As shown in Table 3, all voltages were within the PURA limitations.

Generation Off to On - Flicker
Under this simulation, steady state system was locked into place with the proposed PV going from off to 95% of nameplate capacity. The capacitor banks and regulators in the model were then locked into place. The voltage values were recorded, and the flicker was calculated. The voltages were acceptable within the ANSI limits for voltage and within the 2% limit spelled out in the Eversource standards as shown in Table 4 for voltage flicker. Under normal circuit configurations and having all capacitor banks in service, the maximum flicker occurred at -0.16%. Table 4 below illustrates the flicker on all three phases during peak load.

Table 4: Peak Load Flicker (Off/On)			
Phase	A	B	C
[redacted]			

Generation On to Off – Rapid Voltage Change
This scenario simulates the DER dropping offline. As shown in Table 5, all rapid voltage change values are within the 3% limit spelled out in IEEE 1547-2018 standards. The maximum rapid voltage change occurred at -0.24%. Table 5 below illustrates the RVC on all three phases during peak load at the PCC and at the feeder head.

Table 5: Peak Load Flicker (On/Off)			
Phase	A	B	C
[redacted]			

Minimum Loading

At daytime minimum loading steady state conditions, with generation at a variable power factor and the customer generation connected, the system can sustain voltage within PURA limitations on all circuits associated with the [redacted] substation configuration. The system does not cause high voltage at the PCC; or elsewhere along the [redacted] circuits. This holds true when the project is operating in a Volt/VAR mode. High voltage may be possible if the project operated at unity PF all the time.

Table 6: Min Load 31%

Circuit Point	Generation Off	95% Generation- Hold Taps	Generation 100% - Steady State
[redacted]			

Generation Off

During this simulation, the proposed PV was turned off while all existing DERs 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 Off to On - Flicker

The same analysis for voltage flicker was studied during light load conditions. Table 7 below illustrates the voltage flicker. The voltage flicker does stay within the 2% threshold with the worst-case scenario at -0.33%.

Table 7: Min Load Flicker (Off/On)

Phase	A	B	C
[redacted]			

Generation On to Off – 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 -0.33%.

Table 8: Min Load Flicker (On/Off)			
Phase			
[redacted]			

Voltage Impact During Planned Alternate Operation | [redacted]

[redacted]



Figure 3: Planned Alternate Configuration (Station N-1)

Peak Loading

At peak loading steady state conditions, with generation at full output and the customer generation connected, the system can sustain voltage within the PURA limitations. The system does not cause any voltage problems throughout the model from the feeders fed from the [redacted]

Table 9: Peak Load			
Circuit Point	Generation Off	95% Generation- Hold Taps	Generation 100% - Steady State
[redacted]			

Generation Off
During this simulation, the proposed PV was turned off while all existing generation remained at full output. As shown in Table 9 above, all voltage readings were within the PURA limitations.

Generation On
Under this simulation the PV was at full output while all remaining generation remained at full output. As shown in Table 9, all voltages were within the PURA limitations.

Generation Off to On - Flicker
Table 10 below illustrates the voltage flicker. The voltage flicker does stay within the 2% threshold with the worst-case scenario at -0.16%.

Table 10: Max Load Flicker (N-1, Off/On)			
Phase	A	B	C
[redacted]			

Generation On to Off – Rapid Voltage Change
Table 11 below illustrates the rapid voltage change for the generation on to off analysis. The rapid voltage change does stay within the 3% standard with the worst-case scenario at -2.08%.

Table 11: Max Load Flicker (N-1, On/Off)
[redacted]

Minimum
At daytime minimum loading steady state conditions, with generation at a variable power factor and the customer generation connected, the system can sustain voltage within PURA limitations on all circuits associated with the [redacted] scheme. The system does not cause high voltage at the PCC; or elsewhere on the [redacted] feeders. Note, this is assuming that the project is operating with a Volt/VAR mode **enabled**.

Table 12: Min Load 45%

[redacted]

Generation Off

During this simulation, the proposed PV was turned off while all existing DERs remained at full output. As shown in Table 12, 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 12, all voltages were within the PURA limitations.

Generation Off to On - Flicker

Table 13 below illustrates the voltage flicker. The voltage flicker does stay within the 2% threshold with the worst-case scenario at -0.25%.

Table 13: Min Load Flicker (N-1, Off/On)			
Phase	A	B	C
[redacted]			

Generation On to Off – Rapid Voltage Change

Table 14 below illustrates the flicker for the full generation on to off case. The rapid voltage change does stay within the 3% IEEE 1547-2018 threshold with the worst-case scenario at 0.24%.

Table 14: Min Load Flicker (N-1, On/Off)			
Phase	A	B	C
[redacted]			

Regulators and Capacitors

[redacted]

Primary Configuration: [redacted] Transformer

Table 15 and 16, below, illustrates the substation LTC positions before and after the PV system was put into the model. All substation tap operations remained below the limit of 1.

[redacted]

Alternate Configuration: [redacted]

As one can see below in Tables 17 and 18, the substation LTC for the [redacted] remained at or below the operational limit of 1 with no operations observed.

[redacted]

Protection Study

The project is greater than 1 MW; so, additional effective grounding is necessary. The customer is expected to follow the Eversource inverter and relay settings. The typical settings mandated by ISO-NE are shown in Appendix B. A coordination study will be conducted when the project goes to construction.

Fault Current

Eversource also has standards that require the substation bus and feeder heads maintain a fault current of less than 10 kA. If the fault current at the substation exceeds 10 kA, series reactors are proposed for installation, unless equipment inside of the substation can accommodate the recorded fault current. The three phase pre-project fault currents exceeded 10 kA; so, coordination will be required to ensure equipment has sufficient protection against the maximum fault current of 10.678 kA.

Table 19 – Fault Current Values at [redacted] and Project POI

[redacted]

Risk of Islanding (ROI) Screening

The project underwent the Eversource risk of islanding screening process to determine the risk of islanding and failed. A supplemental Sandia screening was performed and passed. The first screen asks if there are VAR resources. There are capacitors on the circuit; so, this answer is 'yes'. The next question asks if there are any rotating machines. There is a 3.2 MVA rotating machine at the landfill. This answer is yes. The next screen asks if 33% or higher of the inverters have Group 1 and/or 2A UIDM (unintentional islanding detection method). Most of the new installations on this feeder contributing over 50% of total generation have this type of islanding detection. So this answer is 'yes'. Therefore, no additional studies are necessary for risk of islanding.

Condition	Answer
VAR source in the zone? (Rotating Machine, capacitor, underground cable, STATCOM, etc)	Yes
Rotating Machines in the zone?	Yes
Inverters with the same UIDM as the proposed	
Do 33% or higher of the installed inverter capacity on the feeder have Group 1 or 2A IDM?	Yes
Do 50% or higher of the installed inverter capacity on the feeder have Group 2B IDM?	
All inverters are Group 5 IDM?	
All inverters are Group 2c IDM?	
Is the zone net-capacitive?	
All inverters are Group 3,4, or 6?	
Are there more than 5 inverters connected to the feeder with a Y-grounded transformer?	
RESULT	Pass, no further reviews necessary

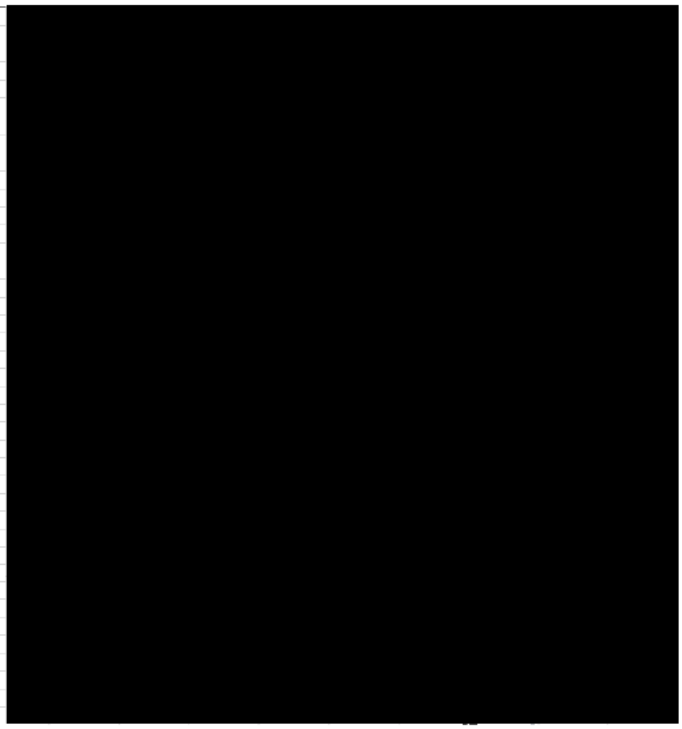


Figure 4: Eversource Risk of Islanding Screening

Dynamic Analysis (PSCAD)

System Upgrades and Service

Primary Feed [redacted]

The customer will need one, new three phase service consisting of a recloser and one primary meter. The new service will also have a clean pole. Distribution engineering to determine if capacitor operations for the VAR-controlled capacitor are acceptable.

In listed form, the project will need the following:

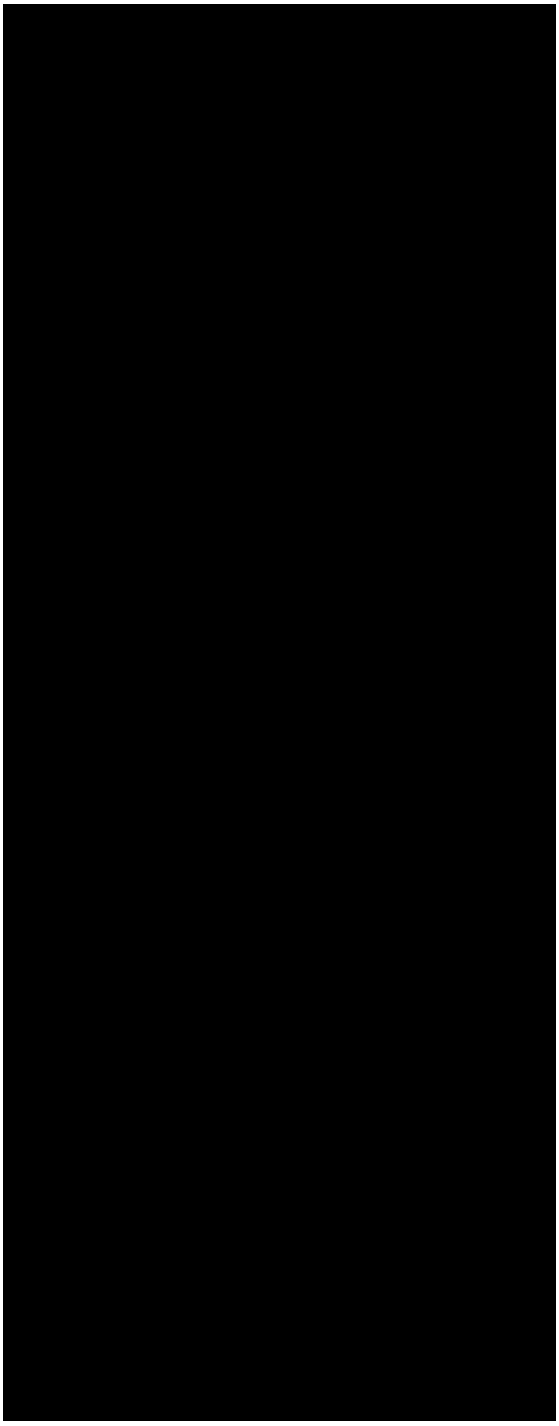
- Site dedicated recloser
- Primary meter (1)
- XXX

Conclusion

[redacted]. The project will also be required to operate in a Volt/VAR mode to ensure VAR support is sufficient to mitigate any high voltage. The project did not cause any adverse impacts to customer voltages or power quality when assuming the project is operating with a ramp rate and Volt/VAR enabled. The project did not cause any excessive LTC operations or voltage regulator operations. There is no risk of islanding as the proposed project passed the Sandia risk of islanding screening. The dynamic study determined…

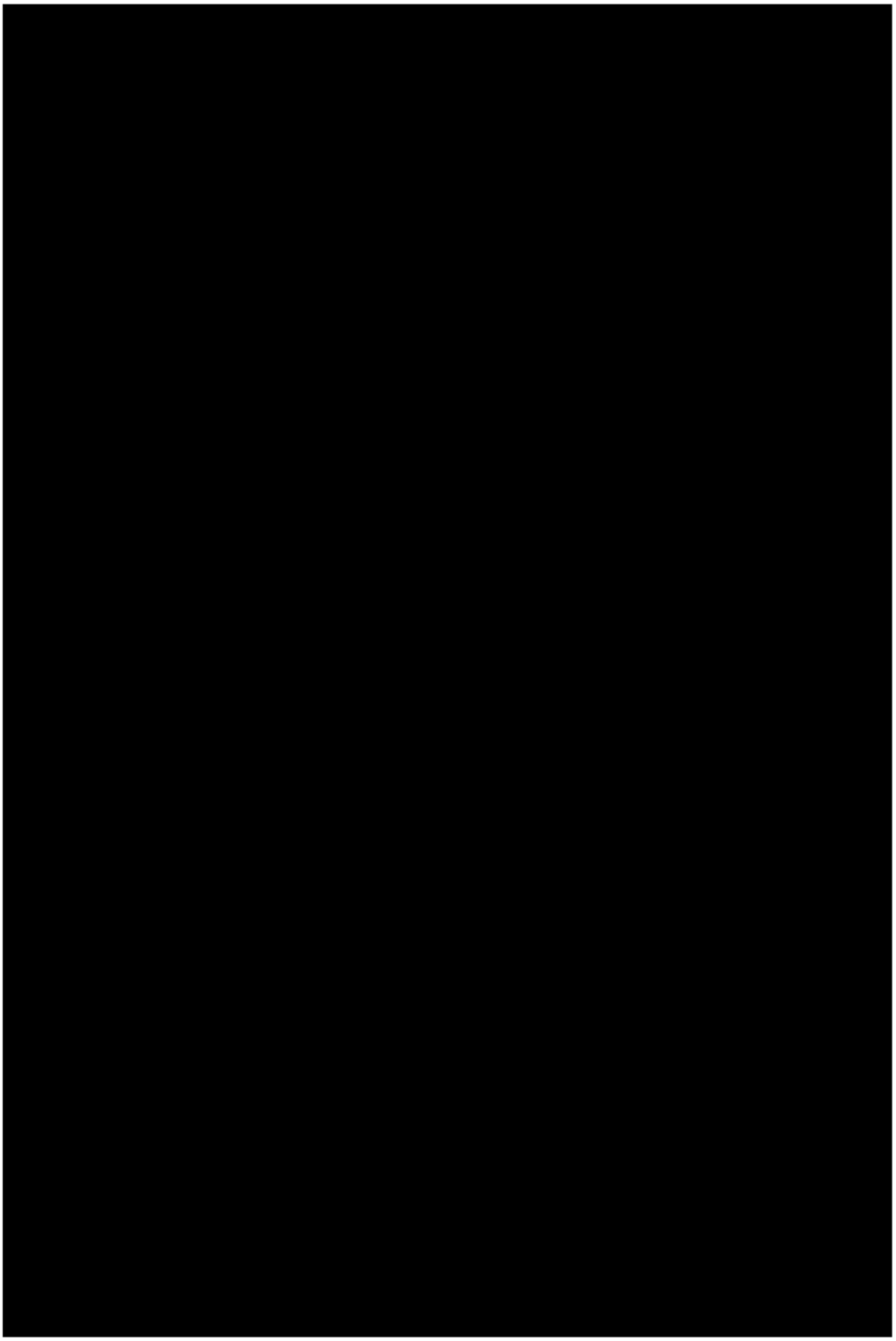
Appendices

Appendix A: Distance from the [redacted] substation to the PV via the [redacted]



Appendix B: Smart inverter settings excerpt from Appendix C of Exhibit B – Generator Interconnection Technical Requirements (April 30th, 2018)

Appendix C



Appendix C: Special Requirements for Operation

1. The DER will operate with a ramp rate. A standard ramp rate of 500 kW/minute should be utilized, consistent with other DERs interconnected to the Eversource
2. The project will operate in a Volt/VAR fashion. This will mitigate any high voltage issues.

Circuit Analysis:



EVERSOURCE

Project Approval Form



Refer to Distribution Capital Project Approval Process
JA-AM-2001-B, Rev.5

Design Documentation:

Geographic Map:



Cost Estimate:

2022 Estimating Sheet (Updated 3/16/22)									
Code	Unit Type	Unit Description	Included	Unit of Measure	Unit Cost	Quantity	Total Cost	KEYWORD	Comments
ALL14	ALL	OTHER	Item not in list	$	[redacted]		$30,000	OTHER	primary metering on customer property
ALL18	ALL	OH/DB/UG - Traffic Control - Police Officer	$1000 / day / officer, Urban area, Main/State roads, 2 needed for reconductoring, multiple crews	$			$3,000	TRAFFIC	Traffic control for work on pole 2090 and 2091 and shifting step transformers.
OH14	OH	OH - POLE - 3ph (CL&P custodian)	Install and shift any 3ph pole CL&P installs pole	LOC			$4,676	POLE	
OH31	OH	OH - Neutral	Labor and Material to install neutral conductor	FT			$2,880	OH WIRE	New neutral for line extension.
OH34	OH	OH - Line Extension - 3ph (556 kcmil)	Includes conductor, poles, poletops, arresters, c/o's, guys, average trimming	FT			$54,000	OH WIRE	New line extension on private property
OH38	OH	OH - Recloser - 3ph	Includes Replacing Pole, 6 Stirrups, 6 arresters, 3 Vertical Disc Switches, Control, etc.	LOC			$47,990	SECTIONALIZE	Install radial recloser ()
OH43	OH	OH - Vertical Disconnect Switches, 600/900 amp, 3-1ph	Includes: Pole replacement, Disconnects, 6 stirrups, arresters	LOC			$10,283	SECTIONALIZE	Install 600 Amp disconnects for Radial recloser
OH50	OH	OH - Stepdowns, 3-1ph - on one POLE	Includes: pole replacement, cutouts, arresters, XF labor only	LOC			$10,000	XF	relocate step-transformer on pole 2091 to 2092.
Total					Sub-Total		$162,829		
			Contingency/Contractor Contingency/Urban Adder			24%	$39,079		
					Total		$201,908		

One-line:

