EVERSOURCE

Project Approval Form

Project Title: 2023_ 4.8KV Delta System Grounding	Project Number: 02EAST48P
Date Prepared: 09/29/2023	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** Regulatory Commitments-Other
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: 12/31/2023	
Total Capital Request: $524.4K	**Authorization Type:** Full Funding

1. Executive Summary

This initiative captures the cost necessary to remediate 4.8 kV ungrounded Delta system to comply with PURA regulatory requirements under Docket No. 96-05-05, National Electric Safety Code (NESC) 2017 Section 9 "Grounding Methods for Electrical Supply and Communication Facilities" and Eversource' Standards DTR 16.411, DTR 16-704. The proper grounding of electrical circuits and equipment is intended to prevent damage to equipment, to safeguard property against fire, and to reduce the hazard of electrical shock.

Project cost estimates were generated by using actual and historical costs of contractor resources completing past 4.8 kV Delta Grounding

The total project request is $524.4K.

2. Project Cost Summary

Capital Costs	2023	Year 2	Year 3+	Total
Internal Labor and Construction Equipment	0.0	0.0	0.0	0.0
Outside Services	293.7	0.0	0.0	293.7
Materials	0.8	0.0	0.0	0.8
Removals	0.0	0.0	0.0	0.0
Risk and Contingency	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0
Subtotal	**294.6**	**0.0**	**0.0**	**294.6**

Indirect Capital Costs	2023	Year 2	Year 3+	Total
Indirects/Overheads (including benefits)	229.8	0.0	0.0	229.8
Capitalized interest or AFUDC, if any	0.0	0.0	0.0	0.0
Subtotal	**229.8**	**0.0**	**0.0**	**229.8**
Total Capital Costs (Gross)	**524.4**	**0.0**	**0.0**	**524.4**
Less Total Customer Contribution	0.0	0.0	0.0	**0.0**
Project Costs (Net of Reimbursement)	**524.4**	**0.0**	**0.0**	**524.4**

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

In order to comply with NESC grounding requirement the Company will install grounding electrodes to its 4.8 kV Delta System in accordance to standards DTR 16.411, DTR 16-704.These project is driven by regulatory requirements under Docket 96-05-05 to upgrade its system in accordance to NESC requirement for “Grounding Methods for Electrical Supply and Communication Facilities”

b. Project Need

Electric circuits are grounded when intentionally or accidentally connected to earth. Grounding prevents the occurrence of dangerous differences in potential between circuits, equipment, or conductor enclosures and the earth or objects in contact with the earth. For 4.8 kV grounding to be effective, the path to ground from circuits and equipment should be permanent and continuous and should have impedance sufficiently low to limit its potential above ground and to facilitate the operation of over-current devices in the circuit. The effectiveness of an intentional ground, such as a driven ground rod, can be nullified by high resistance to ground or loose or broken ground connections, which hamper or prevent the dissipation of fault currents and may contribute to the non-operation of overcurrent protective devices.

c. Project Scope

The Company will install grounds and remediate locations at locations in the following towns:

44 locations, towns - East Haddam, Glastonbury, East Hampton, Colchester, Portland

4. Alternatives Considered

This is a regulatory requirement that will be superseded until all 4.8kV Delta System grounding is completed or is converted to another voltage class system.

5. Project Schedule

Milestone/Phase Name	Estimated Completion Date
Selection of 4.8kV grounding locations	Dec, 2022
Design	Januray, 2023
Bid	January, 2023
Award & Construction Start	April, 2023
Construction Completion	December 2023

6. Regulatory Decisions

Docket No. 96-05-05,

7. Codes and Standards

National Electric Safety Code (NESC) 2017 Section 9 "Grounding Methods for Electrical Supply and Communication Facilities"

8. Risk and Contingencies

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2023	Low	Include a higher number of grounding locations in estimate to reduce changes during grounding installation. Conduct a walk down in project development to avoid potential issues.
Construction resources / storm delays	2023	Medium	Use competitive bidding to ensure lowest outside labor cost. Bid early in the year to allow long construction period.
Materials shortage or long lead times	2023	Low	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.

References

None

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

N/A