EVERSOURCE

Supplement Authorization Form

Project Title: [redacted] Replace Ringed Spacer Cable	Project Number: CD01667
Date Prepared: 04/30/2026	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** RELIABILITY IMPROVE SPEC PROJ
Initiating Organization: Distribution	**Project Type:** Specific
Project DDE: [redacted]	**Capital Investment part of 5-year 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)
Current Authorized Amount: $305.6k	**Approved In-Service Date:** 06/01/2022
Supplement Request: $109.5k	**Estimated In-Service Date:** 12/31/2025
Total Capital Request: $415.1k	**Authorization Type: Supplement Request**
	Reason: Cost Overage

1. Project Background

Project CD01667 was established to fund the replacement of defective spacer cable located on [redacted] Waterbury. The project was part of a broader program to address spacer cable construction that has started to show signs of "ringing" or bare spots on conductor due to a manufacture defect.

This project proposed replacement of 875 feet of 556 AAC spacer cable with 556 AAC 175 MIL HDP covered conductor within the [redacted] zone. This replacement reduces outage frequency associated with customer damage resulting from spacer cable ringing.

2. Supplement Justification Overview

Supplemental funding of $109.5K requested to complete this project. This project incurred no scope change from full funding to supplemental. Additional labor and removal costs drove up the overall cost of the project.

3. Supplement Justification Detail

Increased labor costs associated with the installation and removal of infrastructure were the primary contributors to the project cost overrun. Additionally, higher-than-anticipated direct costs further impacted the final project total.

4. Supplement Cost Summary (Project Total)

Capital Costs	To Date Spend	Prior Authorized	Supplemental Request	Total Request
Internal Labor and Construction Equipment	106.5	83.9	14.3	98.2
Outside Services	15.8	13.5	1.1	14.6
Materials	19.8	13.5	4.7	18.2
Removals	0.0	0.0	16.7	16.7
Risk and Contingency	8.1	0.0	8.1	8.1
Other	71.0	22.9	42.5	65.4
Subtotal	**221.2**	**133.8**	**87.4**	**221.2**

Indirect Capital Costs	To Date Spend	Prior Authorized	Supplemental Request	Total Request
Indirects/Overheads (including benefits)	163.7	165.9	-2.2	163.7
Capitalized interest or AFUDC, if any	30.2	5.9	24.3	30.2
Subtotal	**193.9**	**171.8**	**22.1**	**193.9**
Total Capital Costs (Gross)	**415.1**	**305.6**	**109.5**	**415.1**
Less Total Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Project Costs (Net of Reimbursement)	**415.1**	**305.6**	**109.5**	**415.1**

New Total Request by Year (if applicable)

Note: If multi-year project, include actuals for current and years past, and then show forecasted spend for upcoming years.

Capital Costs	2021	2022	2023	2024	2025	TOTAL
Internal Labor & Equipment	12.5	62.3	13.3	12.0	-1.9	98.2
Outside Services	1.9	9.2	2.0	1.8	-0.3	14.6
Materials	2.3	11.6	2.5	2.2	-0.3	18.2
Removals	2.0	10.2	2.2	2.0	0.4	16.7
Risk and Contingency	0.0	0.0	0.0	0.0	8.1	8.1
Other	8.3	41.5	8.8	8.0	-1.3	65.4
SUBTOTAL Direct Cost	**27.1**	**134.7**	**28.7**	**26.0**	**4.7**	**221.2**
Indirects / Overheads	46.2	141.5	2.1	-26.0	0.0	163.7
AFUDC	0.2	14.2	15.8	0.0	0.0	30.2
SUBTOTAL Indirect Cost	**46.4**	**155.7**	**17.9**	**-26.0**	**0.0**	**193.9**
TOTAL Capital Request	**73.5**	**290.4**	**46.6**	**-0.1**	**4.7**	**415.1**
Less Total Customer Contribution	0.0	0.0	0.0	0.0	0.0	**0.0**
TOTAL Project Cost	**73.5**	**290.4**	**46.6**	**-0.1**	**4.7**	**415.1**

5. Lessons Learned

Initially Approved PAF:

Operations Project Authorization Form

Project Title: [redacted] **Replace Ringed Spacer Cable**	**Project Number: CD01667**
Date Prepared: 07/25/2022	**Company:** Eversource CT
Organization: Electric Field Operations	**Class(es) of Plant:** D Line
Project Initiator: [redacted]	**Project Category:** RELIABILITY IMPROVE SPEC PROJ
Project Manager: [redacted]	**Project Type:** Specific
Project Sponsor: [redacted]	**Capital Investment part of original Operating Plan:** Yes
Estimated in service date: June 1, 2022	**Emergency Related Request?** No
Eng./Constr. Resources Budgeted? Yes	**Facility Type** (check all that apply): ☐ PTF ☐ non-PTF ☒ Distribution
Total Gross Capital Request: $305.6K	**Authorization Type:** Full Funding

Financial Requirements:

Project Authorization

ERM: _____

FP&A: _____

Executive Summary

This project is being established to cover the costs associated with replacement of defective spacer cable on [redacted]. This area is served by the [redacted] This project is part of an overall program to address spacer cable construction that has started to show signs of "ringing", or bare spots on the conductor due to a manufacture defect, as explained below.

This project, therefore, proposes replacement of 875 feet of 556 AAC spacer cable with 556 AAC 175 MIL HDP covered conductor.

This project received initial funding at the January 21, 2021 CTPAC meeting for $118.3K. This full funding request is for $305.6K or an increase of $187.2K or 158%.

The increase in cost on this project included an additional 250' of reconductoring, nighttime work due to commercial business cutovers, extra traffic control, and larger than usual line crews size utilizing

apprentice trainees. This in conjunction with higher indirect charges than anticipated caused this project to exceed its' initial estimate.

Project Costs Summary
Note: Dollar values are in thousands

Capital Costs	2021	2022	2023+	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	$10.3	$73.6	$0	$83.9
Outside Services	$3.0	$10.5	$0	$13.5
Materials	$12.9	$0.5	$0	$13.4
Removals	$0	$0	$0	$0
Risk and Contingency	$0	$0	$0	$0
Other	$0.9	$22.0	$0	$22.9
Subtotal	**$27.1**	**$106.7**	**$0**	**$133.7**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	$46.2	$119.7	$0	$165.9
Capitalized interest or AFUDC, if any	$0.3	$5.6	$0	$5.9
Subtotal	**$46.5**	**$125.3**	**$0**	**$171.8**
Total Customer Contribution	$0	$0	$0	$0
Total Capital Project Costs	**$73.6**	**$232.0**	**$0**	**$305.6**

Technical Justification:

Project Need Statement

This project proposes replacement of 615' of 556 AAC spacer cable on [redacted], with 556 TW, due to ringing as observed during field check.

Project Objectives

Reduce exposure to outages related to conductor damage as a result of spacer cable ringing.

Project Scope

The scope of this project is as follows:

1. [redacted]

Major Material:

875' of 3 phase 556 AAC 175 MIL HDP conductor

Background / Justification

The [redacted]. Within this zone there exists 615' of 556 spacer cable that shows signs of conductor ringing, as a result of a manufacture defect which subjects the conductor to ultra-violet degradation causing the conductor to form rings in the covering. These rings expose the conductor to possible phase-to ground fault current exposure due to the close conductor spacing of spacer cable construction. This slowly degrades the conductor itself, subjecting it to eventual conductor breakage and resulting downed conductor & power outage.

Business Process and / or Technical Improvements:

- Eliminate exposure to wire down events due to damaged conductors.

Alternatives Considered with Cost Estimates

Option 1 – Replace 556 AAC spacer cable with 556 TW. The cost of this alternative is $122k and is the preferred option.

Option 2 – Replace 556 AAC spacer cable with 556 AAC spacer cable. The cost of this option is estimated to be $145k. In addition to the higher initial cost, spacer cable construction is also costlier in the long run since spacer cable spreaders have a finite life and have to be replaced every 20-25 years. This option was not chosen since the tree conditions are minimal in this area, such that the additional cost to install spacer cable instead of open wire is not justified.

Project Option Comparison

Design Criteria	[redacted]	
[redacted]		
Cost	$122k	$145k

Cost / CM Saved	N/A	N/A
Cost / CI Saved	N/A	N/A
Preferred option	X	

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Preliminary Approval	January 2021
Detailed Design	April 2021
Final Approval	May 2021
Construction Start Date	July 2021
Construction End Date	December 2021

Regulatory Approvals

None

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2021	Medium	Included contingency costs in the funding request. Perform detailed Field Analysis and walk down in project development to avoid potential issues.
Customer Permission / Siting Council / Municipal approvals	2021	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach

Internal construction resources not available to perform the work.	2021	High	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Internal engineering resources not available to perform the work.	2021	Medium	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Storm delays	2021	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2021	Low	Schedule work to minimize system abnormal time. Most of this work will require system to be abnormal for any extended period of time.

References

072012 NU Report Ringed Cable.docx

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

CD01667 Project Map.pdf

CD01667 Project One Line.pdf

CD01667 Project Load Summary.pdf

CD01667 Project Need Statement.pdf