EVERSOURCE

Supplement Authorization Form

Project Title: [redacted] PILC Cable Replacement	**Project Number: CD01766**
Date Prepared: 02/12/2024	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** UG CABLE & EQUIPMNT REPLACEMNT
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: $342.4K	**Approved In-Service Date:** 12/31/2023
Supplement Request: $311.5K	**Estimated In-Service Date:** 7/31/2023
Total Capital Request ($): $654.1K	**Authorization Type:** Supplement Request
	Reason: Cost Overage

1. Project Background

CD01766 was established to replace Paper Insulated Lead Covered (PILC) cable on the [redacted] Approximately 3000' of 500 Cu PILC cable was replaced with 750 Cu EPR cable.

2. Supplement Justification Overview

CD01766 has been completed since November 2023. The total cost of the project is $654.1K, which is $311.5K over the full funding approval of $342.4K. The majority of the additional cost on this project was due to replacing cable on a neighboring circuit in the duct bank due to leaking / collapsed splices, while the rest was due to overtime work and civil work needed to clear blocked ducts.

3. Supplement Justification Detail

While the UG crews were inspecting the manholes to pull cable on the [redacted]

[redacted]

Much of the cable work on the [redacted] was done after hours on overtime due to "active" driveways.

Some civil work needed to be done at the junction of Post Road and Lincoln Ave due to blocked ducts.

These scope changes along with consequent overhead charges amounted for the variance on this project.

4. Supplement Cost Summary (Project Total)

Line-item Category	To Date Spend Year(s)	Prior Authorized Year(s)	Variance (Supplemental Request) Year(s)	New Total Request (Add Prior Authorized and Variance) Year(s)
Internal Labor and Construction Equipment	92.2	$32.4	59.8	92.3
Outside Services	0.0	$6.9	0	6.9
Materials	167.2	$106.6	53.7	160.3
Removals	119.0	$41.4	63.4	104.8
Risk and Contingency	0	$23.9	21.7	45.6
Other	2.1	$16.3	0	16.3
SUBTOTAL DIRECTS W/ RISKS	**$380.6**	**$227.5**	**$198.6**	**426.2**
Indirect / Overhead (including benefits)	223.1	$114.9	$108.2	223.1
AFUDC	4.7	$0	$4.7	4.7
Subtotal – Indirect Costs	227.8	**$114.9**	**$112.9**	**227.8**
TOTAL CAPITAL REQUEST	**$608.4**	**$342.4**	**311.5**	**654.1**
Reimbursables/Customer Contribution	$0	$0	$0	$0
PROJECT TOTAL (LESS REIMBURSABLES)	**$608.4**	**$342.4**	**$311.5**	**654.1**

5. Lessons Learned

Careful inspection of the manholes could have uncovered these leaking splices ahead of construction and supplemental funding could have been requested earlier.

Attachments

Full Funding PAF

Operations Project Authorization Form

Project Title: [redacted] **PILC Cable Replacement**	**Project Number: CD01766**
Date Prepared: 05/26/2022	**Company:** Eversource CT
Organization: Electric Field Operations	**Class(es) of Plant:** D Line
Project Initiator: [redacted]	**Project Category:** UG CABLE & EQUIPMNT REPLACEMNT
Project Manager: [redacted]	**Project Type:** Specific
Project Sponsor: [redacted]	**Capital Investment part of original Operating Plan:** No
Estimated in service date: 12/31/2023	**Emergency Related Request?** No
Eng./Constr. Resources Budgeted? Yes	**Facility Type** (check all that apply)**:** ☐ PTF ☐ non-PTF ☒ Distribution
Total Gross Capital Request: $342K	**Authorization Type:** Full Funding

Executive Summary

Work orders have been written and full funding is now being requested for this project at a cost of $342,387. This is 74% of the preliminary estimate of $462,976. There is no scope change in the work to be done, but work orders were written for the work to be done by district crews instead of contractors.

The initial project was presented as follows:

Project CD01766 has been established to replace the Paper Insulated Lead Covered (PILC) cable on the [redacted] *circuit.* [redacted] *. This project is part of an overall strategy to address poor the performing PILC cables in the underground distribution system.*

[redacted]

Project Costs Summary

Capital Costs	2023	2024	2025+	Total
Internal Labor and Construction Equipment	$32,385	$0	$0	$32,385
Outside Services	$6,859	$0	$0	$6,859
Materials	$106,611	$0	$0	$106,611
Removals	$41,400	$0	$0	$41,400
Risk and Contingency	$23,887	$0	$0	$23,887
Other	$16,331	$0	$0	$16,331
Subtotal	**$227,473**	**$0**	**$0**	**$227,473**

Indirect Capital Costs	2023	2024	2025+	Total
Indirects/Overheads (including benefits)	$114,914	$0	$0	$114,914
Capitalized interest or AFUDC, if any	$0	$0	$0	$0
Subtotal	**$114,914**	**$0**	**$0**	**$114,914**
Total Capital Costs (Gross)	**$342,387**	**$0**	**$0**	**$342,387**
Less Total Customer Contribution	**$ -**	**$ -**	**$ -**	**$ -**
Project Costs (Net of Reimbursement)	**$342,387**	**$0**	**$0**	**$342,387**

Technical Justification:

Project Need Statement

Project CD01766 has been established to replace the paper insulated lead covered (PILC) cable on the [redacted] with 750 CU ethylene propylene rubber (EPR) insulated cable. The PILC cable needs to be upgraded to improve the reliablitiy of the circuit due to this type of cable on Eversource's UG system being prone to failures. Additionally, the [redacted]

Refer to the outage data below

[redacted]Outage Data.xlsx

[redacted]

Project Objectives

1. Upgrade existing PILC cable to 750 CU EPR.
2. Resolve the normal and contingency overload of [redacted].

Project Scope:

This project proposes the following cable replacement:

1. [redacted]

Major Material:

- 3,000' 750 Cu 15kV cable

Background:

Project CD01766 is part of an initiative to eliminate PILC cables due to their demonstrated poor performance on Eversource's distribution system.

PILC copper cable was used extensively in the urban underground electrical systems that were built in the early/mid 1900s. This cable is now reaching the end of its useful life, and cable failures cause feeder lock-outs which can impact customer reliability and satisfaction.

Beginning in 2018, Eversource - CT has established a program to proactively replace PILC cable. Targeted cable replacement is prioritized based on outage history / reliability.

The [redacted]

[redacted]

The following is a list of known cable faults on the [redacted] from 1/1/2005 to present:

- 6/29/2005
- 8/3/2005
- 7/31/2015

Alternatives Considered:

Were alternative solutions considered/applicable? Include any cost/benefit analysis.

Project is a compliance obligation - no alterntives considered - no financial benefit

Regulatory Approvals:

Are Regulatory body approvals needed for the project?

No

Project Schedule

Milestone/Phase Name	Estimated Date
100% Engineering Completion	October 2022
Construction Start	January 2023
Testing/Commissioning	June 2023
In Service Date	June 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	Medium	Included contingency costs in the funding request. Perform detailed Field Analysis and walk down in project development to avoid potential issues.
Internal construction resources not available to perform the work.	2023	Medium	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Storm delays	2023	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2023	Medium	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods

References

Limiting Sheet rev.3.xlsx

MH548 E WALL-[redacted].xlsx

[redacted] Outage Data.xlsx

CD01766_project_needs_statement.pdf

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

[redacted]

[redacted]