EVERSOURCE

Supplement Authorization Form

Project Title: Circuit [redacted] Conversion	Project Number:CD00780
Date Prepared: 04/28/2026	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** S/S ELIMINATION-LINE WORK
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: $1,447K	**Approved In-Service Date:** 2023
Supplement Request: $1,194.8K	**Estimated In-Service Date: 12/31/2020**
Total Capital Request: $2,641.8K	**Authorization Type: Supplement Request**
	Reason: Cost Overage

1. Project Background

This project was established to eliminate the islanded 4.8kV [redacted] circuit [redacted] by converting it to 23kV. The scope involved removing 6,400 ft of aging 300 MCM 3/C PILC cable and decommissioning the [redacted] station, which previously utilized a 2500 KVA pad-mounted XF and Vista switchgear to step down power from the [redacted] circuits. These upgrades were essential to resolve stranded customer risks associated with potential PILC cable or station component failures.

2. Supplement Justification Overview

The requested additional amount of $695.7K is 77% above the authorized direct cost of $907.8K.

3. Supplement Justification Detail

The $695.7K additional direct spend was mainly due to additional Outside Services and removal costs.

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	$46.6	$170.1	$-131.2	$38.9
Outside Services	$1265.9	$560.2	$496.0	$1056.2
Materials	$242.1	$168.9	$33.0	$202.0
Removals	$0.0	$0.0	$257.1	$257.1
Risk and Contingency	$51.8	$0.0	$51.8	$51.8
Other	$-2.9	$8.6	$-11.0	$-2.4
SUBTOTAL DIRECTS W/ RISKS	**$1603.6**	**$907.8**	**$695.7**	**$1603.6**
Indirect / Overhead (including benefits)	$1015.6	$517.0	$498.6	$1015.6
AFUDC	$22.6	$22.2	$0.4	$22.6
Subtotal – Indirect Costs	**$1038.2**	**$539.2**	**$499.0**	**$1038.2**
TOTAL CAPITAL REQUEST	**$2641.8**	**$1447.0**	**$1194.8**	**$2641.8**
Reimbursables/Customer Contribution	$0.0	$0.0	$0.0	$0.0
PROJECT TOTAL (LESS REIMBURSABLES)	**$2641.8**	**$1447.0**	**$1194.8**	**$2641.8**

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.

Line item Category	2019	2020	2021	2022	2023	Total
Internal Labor and Construction Equipment	$0.5	$24.3	$14.0	$0.0	$-0.1	$38.9
Outside Services	$14.5	$660.3	$381.2	$3.5	$-3.3	$1056.2
Materials	$2.8	$126.3	$72.9	$0.7	$-0.6	$202.0
Removals	$3.4	$154.6	$89.2	$0.8	$9.1	$257.1
Risk and Contingency	$0.0	$0.0	$0.0	$0.0	$51.8	$51.8
Other	$0.0	$-1.5	$-0.9	$0.0	$0.0	$-2.4
SUBTOTAL DIRECTS W/ RISKS	**$21.1**	**$963.9**	**$556.6**	**$5.1**	**$56.8**	**$1603.6**
Indirect / Overhead (including benefits)	$26.1	$593.5	$433.3	$-37.2	$0.0	$1015.6
AFUDC	$0.4	$15.0	$7.2	$0.0	$0.0	$22.6
Subtotal – Indirect Costs	**$26.5**	**$608.5**	**$440.5**	**$-37.3**	**$0.0**	**$1038.2**
TOTAL CAPITAL REQUEST	**$47.6**	**$1572.4**	**$997.1**	**$-32.2**	**$56.8**	**$2641.8**
Reimbursables/Customer Contribution	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
PROJECT TOTAL (LESS REIMBURSABLES)	**$47.6**	**$1572.4**	**$997.1**	**$-32.2**	**$56.8**	**$2641.8**

5. Lessons Learned

N/A

[Original Presented PAF]

Operations Project Authorization Form

Date Prepared: May 23, 2019	**Project Title:** [redacted], [redacted], [redacted] Conversion
Company/ies: Eversource CT	**Project ID Number:** CD00780
Organization: Distribution Engineering	**Class(es) of Plant:** Distribution OH and UG
Project Initiator: [redacted]	**Project Category:** UG Cable (PILC), Stranded Customers
Project Manager: [redacted]	**Project Type:** Specific
Project Sponsor: [redacted]	**Project Purpose:** Eliminate / Convert 4.8 kV Circuit 3505.
Estimated in service date: 12/31/2020	**If Transmission Project:** NA
Eng. / Constr. Resources Budgeted? Yes	**Capital Investment Part of Original Operating Plan?** Yes
Authorization Type: Initial ENG Funding	**O&M Expenses Part of the Original Operating Plan?** Yes
Total Request: $ 1.52 million	

Financial Requirements:

Project Authorization

ERM: _____

FP&A: _____

Executive Summary

Remove 6,400 feet of 300 MCM 3/C PILC and eliminate islanded 4.8 kV [redacted] by converting its underground fed customers to 23 kV. Resolve stranded customer issue for PILC cable failure or [redacted] component failure.

[redacted] is a station designed around one padmounted 2500 KVA transformer that transitions a 23 kV branch of circuit [redacted] into 4.8 kV circuit 3505. It encompasses three components:

[redacted]

[redacted]

Circuit 3505 Characteristics:

[redacted]

Project Costs Summary

	Prior Authorized	2020	2021	2022+	Totals
Capital Additions - Direct	$0	$772,048	$0	$0	$772,048
Less Customer Contribution	$0	$0	$0	$0	$0
Removals net of Salvage ____%	$0	$135,792	$0	$0	$135,792
Total - Direct Spending	$0	$907,839	$0	$0	$907,839
Capital Additions - Indirect	$0	$516,954	$0	$0	$516,954
Subtotal Request	$0	$1,424,793	$0	$0	$1,424,793
AFUDC	$0	$23,292	$0	$0	$23,292
Total Capital Request	$0	$1,448,085	$0	$0	$1,448,085
O&M	$0	$69,714	$0	$0	$69,714
Total Request	$0	$1,517,799	$0	$0	$1,517,799

Financial Evaluation

Direct Capital Costs	Year 1	Year 2	Year 3+	Total
Straight Time Labor	$144,912	$0	$0	$144,912
Overtime Labor	$25,151	$0	$0	$25,151
Outside Services	$560,185	$0	$0	$560,185
Materials	$168,946	$0	$0	$168,946
Other, including contingency amounts (describe)	$8,645	$0	$0	$8,645
Total Direct Costs	**$907,839**	**$0**	**$0**	**$907,839**

Indirect Capital Costs	Year 1	Year 2	Year 3+	Total
Indirects/Overheads (including benefits)	$516,954	$0	$0	$516,954
Capitalized interest or AFUDC, if any	$22,205	$0	$0	$22,205
Total Indirect Costs	**$539,159**	**$0**	**$0**	**$539,159**
Total Capital Costs	**$1,446,999**	**$0**	**$0**	**$1,446,999**
Less Total Customer Contribution	**$0**	**$0**	**$0**	**$0**

Total Capital Project Costs	**$1,446,999**	**$0**	**$0**	**$1,446,999**
Total O&M Project Costs	**$70,800**	**$0**	**$0**	**$70,800**

Total Project Cost	**$1,517,799**	**$ -**	**$ -**	**$1,517,799**

Technical Justification:

Project Need Statement

Although circuit [redacted] has been highly reliable, the [redacted] neighborhood has outgrown its capacity. Over the years, it became necessary to add more capacity (500 KVA) by installation of 4.8 kV overhead 3-phase banks served off surrounding overhead circuits [redacted] via step down transformers). Opportunities to increase area capacity for future growth are limited.

Due to periodic voltage issues, three manhole UG transformer bank locations have their OH secondary conductors tied together to alleviate low voltage problems. Consequently, any type of primary cable, secondary cable, transformer or connector failure will have a larger than normal adverse effect and require longer time to detect, isolate, restore and repair.

The [redacted] 4.8 kV underground infrastructure was installed in the 1940s. Because of their age, spare parts are not in stock. This makes it difficult to repair and costly to replace with today's equivalent material.

Problems

When a cable fault or equipment failure occurs along any component of this underground system (substation component, primary cable, secondary cable, connectors or transformers) the restoration of electric service will be very laborious because:

1: No means to isolate 4.8 kV primary underground cable faults

2: No [redacted]

3: No replacement parts or items compatible with 1940's vintage UG equipment

4: [redacted]

5: Liability from environmental hazards associated with maintenance of paper & lead cable, PCB oil filled transformers and asbestos material.

6: No means to easily connect backup generators

Eversource procedures to install backup generators for [redacted] UG fed customers will be extremely arduous. Largely due to abnormal construction, such as banking 3-phase OH transformer secondaries to alleviate voltage problems. As well as, a 4.8 kV primary reverse riser tapped directly off the PILC and numerous secondary reverse risers.

Project Objectives:

[redacted]

Project Scope (see AIMS need statement for additional project and segment details)

[redacted]



[redacted] @ PMH-9 switchgear load (100E Fuses)	Customer Count	Estimated 23KV amps
[redacted] @ Park Rd. PMH-9 Switchgear: 5KV load before CD00780	400	20.20
Less $ [redacted] transfer to 23KV circui [redacted]	-132	-5.37
Less [redacted] transfer to 5KV circuit [redacted]	-35	-3.79
Plus [redacted] from circuit [redacted]	3	2.76
Plus [redacted] off-load from 5KV circuit [redacted]	27	2.86
Subtotal - Number of Customers on 4/0 AL 23KV UG Loop	263	16.66
Transfer [redacted] customers beyond 100K fuse pole H [redacted]	102	10.00
[redacted] Park Rd. PMH-9 Switchgear load after CD00780	365	26.66

Additional Load – Approximately one-half of [redacted] new customers from the future # [redacted] URD will be added onto this [redacted] switchgear.

AIMS Segment Costs Summary

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD00780
[redacted] Conversion rev1

Project Option Summary

ID	Description	Segments	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)	Prfrd
O1	Preferred	1,3	$1,517,799	$0	100%	$0.00	$0.00	☑

Segments

ID	Title	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)
1	[redacted] onversion [redacted] - OH & UG Proposal	$1,294,549			$0.00	$0.00
2	[redacted] Conversion: Alt-1, [redacted] - OH & UG	$1,142,500			$0.00	$0.00
3	Civil Work - Required for All Options	$223,250			$0.00	$0.00
4	[redacted] Conversion: Alt-2, [redacted] - OH Line E	$1,330,279			$0.00	$0.00
5	Void Option	$0			$0.00	$0.00

Project & Segment cost are based on estimated unit prices derived from previously written work orders for similar overhead and underground construction.

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Business Process and / or Technical Improvements:

Elminates over 6,000 feet of paper and lead primary cable

Eliminates [redacted] 4.8 kV Substation

Eliminates [redacted] stranded customers from a 4.8 kV cable fault or equipment failure

Eliminates antiquated 4.8 kV underground transformer banks within manholes

Maintains our existing PMH-9 switchgear, its available output could serve future load along [redacted]

Alternatives Considered with Cost Estimates:

[redacted]

Advantages:

1. This option uses only 3000 feet of primary cable instead of 6400 feet.

Disadvantages

1. Aternative-1 plan creates a [redacted] customer zone on circuit [redacted]
2. Alternative-1 plan eliminates our existing PMH-9 switchgear. The 23KV extra output could serve future load along Raymond Road or [redacted]
3. No significant cost difference with Preferred Design and Alternative -1

[redacted]

Our underground radial feed to AC Peterson's pad mounted transformer will remain.

SIternative -2 (segments 3 & 4)

Advantages

- No easements required for padmounted transformers.
- Secondary only pole line already exists along Park Road.

Disadvantages:

- Overhead primary lines are less reliable that preferred option
- This design eliminates our existing PMH-9 switchgear creates a [redacted] customer zone on circuit [redacted]
- The Town of West Hartford will not allow a 3,600 feet 3-phase OH line extension. Particularly, after they paid CL&P to remove most of our OH road crossing secondary and service wires. This work was completed in the late 1990's as part of a town beautification project, where they also hired private electricians to convert commercial & residential overhead service drops to UG services.
- Under TD-007 guideline, Eversource must seek customer approvals for extending circuit [redacted] an additional 3,000 feet.
- No significant cost difference than preferred option

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Initial Funding Authorization	May 2019
Detail Design	November 2019
Full Funding Authorization	December 2019
Begin Construction	March 2020
Complete Construction	December 2020

Regulatory Approvals

None required

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2020	Medium	Estimated project cost is based on past work orders for similar type work. In all likelihood, construction for this project will be accomplished by venders
Internal construction resources not available to perform the work.	2020	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.	2020	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2020	Low	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2020	Medium	Internal and external resources may be used for storm activity which could delay work. Eversource may be forced to use external resources.
System abnormal configuration	2020	A	Schedule work to minimize system abnormal time. Alternative circuit is available if system is abnormal for extended period.

References

None

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