EVERSOURCE

Project Approval Form

Project Title: [redacted] ROW – Eliminate Triple Circuit Pole Line	Project Number: CD01569
Date Prepared: 10/18/2023	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** RIGHT OF WAY LINES
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: 7/31/22	
Total Capital Request: $514.3K	**Authorization Type:** Full Funding

1. Executive Summary

[redacted] In addition, while construction equipment is in the right-of-way, the existing 13 poles will be replaced since they are approximately 50 years old.

10/18/23 – Full Funding request. The Partial Funding estimate is $288K, approved at CTPAC on 7/24/20. Full Funding estimate is $514K, a difference of $226K, or a 79% increase. System Projects line crews were assigned to this project and all work was completed in July 2022. There is no scope change.

Reasons for the increase:

1. Trimming was required and was not called for in the ENG estimate, this cost attributed to $154K.
2. Matting was required and was not called for in the ENG estimate, this cost attributed $135K.

- If trimming and matting costs had been included in the Partial Funding estimate, the ENG estimate would have been $577K ($288K + $154K + $135K) and the ACT amount would have been 12% lower than the ENG.

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	Year 2020	Year 2021	Year 2022	Year 2023	Total
Direct Capital Costs					
Internal Labor and Construction Equipment	0.2	5.9	17.6	-1.8	21.9
Outside Services	1.9	70.5	212.4	-21.5	263.2
Materials	0.2	5.7	17.3	-1.8	21.5
Removals	0.4	15.1	45.6	-4.6	56.6
Risk and Contingency	0.0	0.0	0.0	10.1	10.1
Other	0.0	0.5	1.5	-0.2	1.9
Subtotal – Direct Costs	**2.7**	**97.7**	**294.5**	**-19.8**	**375.1**
Indirect Capital Costs					
Indirect/Overheads (including benefits)	0.9	31.3	94.3	-9.6	116.9
Capitalized interest or AFUDC, if any	0.2	6.0	17.9	-1.8	22.3
Subtotal – Indirect Costs	**1.0**	**37.3**	**112.3**	**-11.4**	**139.2**
Total Gross Capital Costs	**3.7**	**135.0**	**406.8**	**-31.1**	**514.3**
Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Total Net Capital Project Costs	**3.7**	**135.0**	**406.8**	**-31.1**	**514.3**

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

Engineering was requested by Executive Management to create a project to eliminate the triple-circuit pole line. Although this right-of-way has had good reliability, executive management identified the pole line as being a potential reliability problem for a single event, having 3 circuits on the same pole line. [redacted] Also, Distribution Engineering's philosophy has always been to limit the number of circuits on a pole line to avoid a degradation of reliability for a single event.

b. Project Need

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

c. Project Scope

[redacted]

Major Material:

13 poles

4. Alternatives Considered



Project Option Comparison

[redacted]

Request Type	Partial	Partial	Partial	Partial	Full	Partial
Total Cost	$549K	$440K	$259K	$150K	$536.4K	$179K
Capital Cost	$526K	$422K	$248K	$144K	$514.3K	172K
Expense Cost	$23K	$18K	$11K	$6K	$22.1K	$7K
Preferred option					X	

7. Project Schedule

Milestone/Phase Name	Estimated Date
Partial Approval	7/4/20
100% Detailed Engineering Completion	9/1/21
Fully Funded	10/18/23
Construction Start	1/1/22
In Service Date	7/31/23

8. Regulatory Decision

9. Codes and Standards

10. Risk and Contingencies

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2022	Low	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	2022	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach.

Internal construction resources not available to perform the work.	2022	Low	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.	2022	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2022	Low	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2022	Medium	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2022	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	2022	Low	Before use of new technology ensure support of standards and manufacturer. Schedule project to accommodate for extra time or ensure new technology is not on the critical path.
Wetlands / Environmentally sensitive area	2022	Low	Use of mats and specialty equipment, only work during certain times of the year.

11. References

References
1.
2.
3.
4.
5.

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

Attachment	Included in Submittal?
A. Cost Estimate	*YES*
B. T&D Structures in ROW with Dimensions	*YES*
C. Aerial and Street View	*YES*
D. Load Sheet	*YES*

Attachment A

Cost Estimate – All Options Summary.

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Specific Project Proposal - Project #: CD01569
Eliminate Triple Circuit [redacted] Pole Line

Project Option Summary

ID	Description	Segments	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)	Prfrd
O5	Extend new 750Al A.C. replace existing poles	2,3	$549,016	$0	100%	$0.00	$0.00	☐
O6	Extend 750Al A.C.	3	$440,112	$0	100%	$0.00	$0.00	☐
O7	Shift 500Al A.C. and replace existing poles	1,2	$259,338	$0	100%	$0.00	$0.00	☐
O8	Shift 500Al A.C.	1	$150,433	$0	100%	$0.00	$0.00	☐
O9	Shift Spacer Cable	4	$179,425	$0	100%	$0.00	$0.00	☐
O10	Shift Spacer and replace existing poles	2,4	$288,330	$0	100%	$0.00	$0.00	☑

Cost Estimate – Shift 500 kcmil Cu – 30R15.

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Specific Project Proposal - Project #: CD01569

Eliminate Triple Circuit [redacted] Pole Line

Design Alternative CD01569-01

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$121,317
Contingency Amount:	$29,116
Estimate:	$150,433
Reimbursement:	$0
Net Amount:	**$150,433**

Description: Shift 500Al A.C. 10Ft

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$10,528.80
POLE OH - POLE - 3ph (CL&P custodian)	16-OH14			$60,788.00
OTHER OTHER Additional Funding for 100% poles and any ROW access issues.	16-ALL14			$50,000.00

Associated / Impacted Devices

Status	Type / SysID	Street / Cross St	Structure / Town	Circuit	Map	Cust	Notes
Existing	[redacted]		MADISON	[redacted]		[redacted]	

Cost Estimate – Replace 13 Existing Poles.

Connecticut Light & Power
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Specific Project Proposal - Project #: CD01569
Eliminate Triple Circuit [redacted] Pole Line

Segment CD01569-02

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$87,826
Contingency Amount:	$21,078
Estimate:	$108,905
Reimbursement:	$0
Net Amount:	**$108,905**
Description:	Replace Existing Poles from riser to Horse Pond Rd

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$14,038.40
POLE OH - POLE - 3ph (CL&P custodian)	16-OH14			$60,788.00
OTHER OTHER 100% ES Poles extra cost	16-ALL14			$13,000.00

Associated / Impacted Devices

Status	Type / SysID	Street / Cross St	Structure / Town	Circuit	Map	Cust	Notes
Existing	[redacted]	[redacted]	MADISON	[redacted]		[redacted]	

Cost Estimate – Install new 750 kcmil Cu AC – [redacted].

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Specific Project Proposal - Project #: CD01569
Eliminate Triple Circuit [redacted] Pole Line

Design Alternative CD01569-03

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$354,929
Contingency Amount:	$85,183
Estimate:	$440,112
Reimbursement:	$0
Net Amount:	**$440,112**

Description: Run new 750Al A.C. and rem 500Al A.C.

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$10,528.80
OH WIRE OH - Line Extension w/Aerial Cable - (any gauge)	16-OH35			$288,000.00
OH WIRE OH - Remove circuit wire (3 phase)	16-OH37A			$6,400.00
OTHER OTHER Adjustment for 100% ES poles and any transmission assistance with ROW	16-ALL14			$50,000.00

Associated / Impacted Devices

Status	Type / SysID	Street / Cross St	Structure / Town	Circuit	Map	Cust	Notes
Existing	[redacted]	[redacted]	MADISON	[redacted]		[redacted]	

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Cost Estimate – Shift 3[redacted] [redacted] to new pole line.

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Specific Project Proposal - Project #: CD01569
Eliminate Triple Circuit [redacted] Pole Line

Segment CD01569-04

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$144,698
Contingency Amount:	$34,727
Estimate:	$179,425
Reimbursement:	$0
Net Amount:	**$179,425**

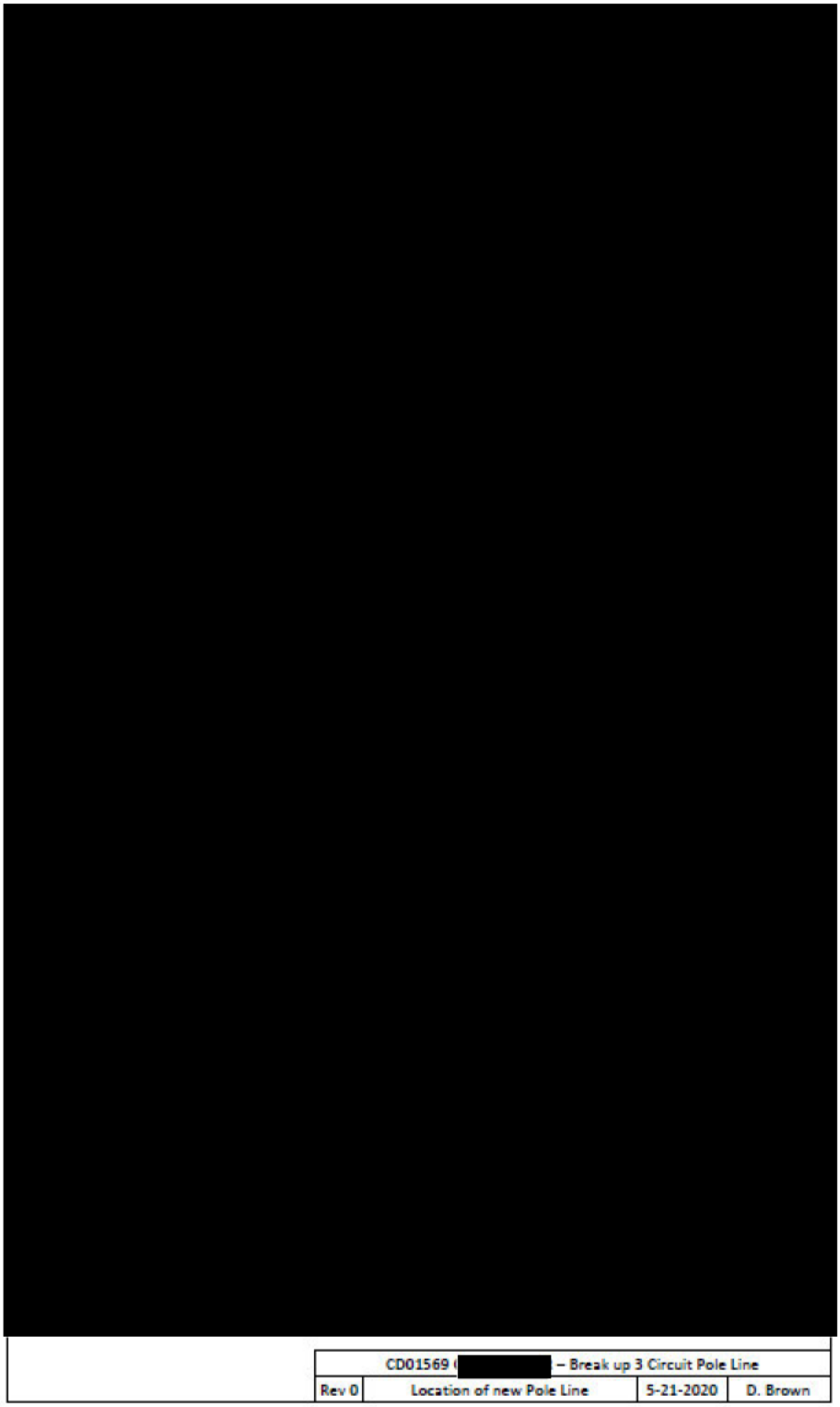
Description: Shift 30R13 Spacer Cable

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$10,528.80
POLE OH - POLE - 3ph (CL&P custodian)	16-OH14			$60,788.00
POLE OH - JUNCTION POLE - 3ph (CL&P custodian)	16-OH14A			$23,380.80
OTHER OTHER Extra for 100% ES poles and acess to ROW	16-ALL14			$50,000.00

Associated / Impacted Devices

Status	Type / SysID	Street / Cross St	Structure / Town	Circuit	Map	Cust	Notes
Existing	[redacted]	[redacted]	MADISON	[redacted]	[redacted]	[redacted]	
Existing			MADISON				
Existing			MADISON				

Attachment B – Dimensions of T&D Structure.



Attachment C

Aerial and Street View



[redacted]crossing under T Line



[redacted] on side of T-Line



Attachment D – Load Sheet

Project Load Summary



Partial Funding PAF

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Project Authorization Form

Operations Project Authorization Form

Date Prepared: 07/08/2020	Project Title: [redacted]ROW
Company/ies: Eversource CT	Project ID Number: CD01569
Organization: Distribution Electric	Class(es) of Plant: Distribution
Project Initiator: [redacted]	Project Category: Line
Project Manager [redacted]	Project Type: Right of Ways
Project Sponsor [redacted]	Project Purpose: Eliminate Triple Circuit Pole Line
Estimated in service date: 12/31/2021	If Transmission Project: PTF? N/A
Eng. /Constr. Resources Budgeted? N	Capital Investment Part of Original Operating Plan? N
Authorization Type: Preliminary Funding	O&M Expenses Part of the Original Operating Plan? N
Total Request: $288K	

Financial Requirements:

Project Authorization
ERM: _____

FP&A: _____

Executive Summary

[redacted]

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Project Authorization Form

Project Costs Summary
Note: Dollar values are in thousands

	Prior Authorized	2021	20__	20__+	Totals
Capital Additions - Direct	$0	$153	$0	$0	$153
Less Customer Contribution	$0	$0	$0	$0	$0
Removals net of Salvage ___%	$0	$36	$0	$0	$36
Total - Direct Spending	$0	$189	$0	$0	$189
Capital Additions - Indirect	$0	$84	$0	$0	$84
Subtotal Request	$0	$273	$0	$0	$273
AFUDC	$0	$5	$0	$0	$5
Total Capital Request	$0	$278	$0	$0	$278
O&M	$0	$10	$0	$0	$10
Total Request	$0	$288	$0	$0	$288

Financial Evaluation
Note: Dollar values are in thousands

Direct Capital Costs	Year 1	Year 2	Year 3+	Total
Straight Time Labor	$5	$0	$0	$5
Overtime Labor	$1	$0	$0	$1
Outside Services	$156	$0	$0	$156
Materials	$26	$0	$0	$26
Other, including contingency amounts (describe)	$0	$0	$0	$0
Total Direct Costs	**$189**	**$0**	**$0**	**$189**

Indirect Capital Costs	Year 1	Year 2	Year 3+	Total
Indirects/Overheads (including benefits)	$84	$0	$0	$84
Capitalized interest or AFUDC, if any	$5	$0	$0	$5
Total Indirect Costs	**$89**	**$0**	**$0**	**$89**
Total Capital Costs	**$278**	**$0**	**$0**	**$278**
Less Total Customer Contribution	**$0**	**$0**	**$0**	**$0**
Total Capital Project Costs	**$278**	**$0**	**$0**	**$278**
Total O&M Project Costs	**$10**	**$0**	**$0**	**$10**
Total Project Cost	**$ 288**	**$ -**	**$ -**	**$ 288**

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Project Authorization Form

Technical Justification:

Project Need Statement

[redacted]

Project Objectives

Mitigate a triple circuit pole line by transferring one of the three circuits to its own pole line 10ft south of the existing pole line.

Project Scope

[redacted]

Major Material:

There is no major material only poles.

Background / Justification

Although this right-of-way has had very good reliability, executive management identified the pole line as being a potential reliability problem, having 3 circuits on the same pole line. In addition, Distribution Engineering philosophy has always been to limit the number of circuits on a pole line to avoid a degradation of reliability.

This pole line is in the [redacted]ine. OTRM 11 procedure on Spacing between line in rights-of-way. Distribution was given permission to install 40 ft poles 10 feet from the center line of the existing distribution line. If a variance needs to be made, Transmission needs to be contacted if a new pole needs to be closer to the transmission line due to field conditions.

Business Process and / or Technical Improvements:
By completing this project, we are being proactive by eliminating the risk a triple circuit failure just outside the substation.

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Project Authorization Form

Alternatives Considered with Cost Estimates

- Set 13 new poles and shift the existing 556 AAC spacer cable (30R13) to new pole line = $173K
- Set 13 new poles and shift existing 500Al aerial cable (30R15) to new pole line = $146K
- Set 13 new poles shift existing 500Al aerial cable (30R15) to new pole line and replace 13 existing poles = $250K
- Set 13 new poles and install new 750Al aerial cable (30R15) = $426K
- Set 13 new poles and install new 750Al aerial cable (30R15) and replace 13 existing poles = $531K

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Preliminary Approval	7-15-2021
Detailed Engineering	9-1-2021
Pole Sets	10-1-2021
Circuit Transfer to new pole line	12-31-2021

Regulatory Approvals

Transmission Approval:

We have verbal approval, but we are waiting for email confirmation.

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Project Authorization Form

Risks and Risk Mitigation Plans

Use this table: Use low medium high and what is applicable to project (make sure your risk horizon has an accurate year)

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.

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Project Authorization Form

References


CD01569 Load Summary.pdf


Exhibit B - Customer Restoratic


CD01569 PAF Calculator - 02-18-2


CD01569_project_needs_statement.pdf

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


Aerial and Street view of ROW.pdf


Exhibit A - Cross View.pdf


Pole Map.pdf