Project Title: [redacted] TDRP	**Project Number:** CD01647
Date Prepared: 01/30/2024	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** TRMSN DISTR RELIABILTY PERFRM
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: 01/31/2023	
Total Capital Request: $2,896K	**Authorization Type:** Full Funding

1. Executive Summary

Full funding is being requested for this project at a cost of $2,896K which is 117% of the partial funding capital estimate of $2,478K. There is no scope change in the project. The variance between the full funding and partial funding estimate is due to underestimated labor and material charges. The legacy estimating units used to produce the partial funding estimate are about 30% lower than the estimates used today, which were updated to reflect increased labor & material costs.

The Original Project was presented as follows:

[redacted]

2. Project Cost Summary

Financial Evaluation ($000's)

Capital Costs	2021 Actual	2022 Actual	2023 Actual	2024 Actual	Total
Internal Labor and Construction Equipment	1.0	43.6	0.8	-0.2	45.2
Outside Services	21.9	956.8	16.7	-3.5	991.8
Materials	16.4	717.9	12.5	-2.7	744.2
Removals	4.4	193.1	3.4	5.7	206.5
Risk and Contingency	0.0	0.0	0.0	56.8	56.8
Other	0.0	0.2	0.0	0.0	0.2
Subtotal	**43.7**	**1,911.6**	**33.3**	**56.1**	**2,044.7**
Indirect Capital Costs	**2021 Actual**	**2022 Actual**	**2023 Actual**	**2024 Actual**	**Total**
Indirects/Overheads (including benefits)	52.9	820.5	-62.7	-1.7	809.0
Capitalized interest or AFUDC, if any	1.0	40.3	1.0	0.0	42.4
Subtotal	**54.0**	**860.9**	**-61.7**	**-1.7**	**851.4**
Total Capital Costs (Gross)	**97.7**	**2,772.5**	**-28.4**	**54.4**	**2,896.2**
Less Total Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Project Costs (Net of Reimbursement)	**97.7**	**2,772.5**	**-28.4**	**54.4**	**2,896.2**

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

[redacted]. The table below shows parts of the project and how the cost per customer minutes calculations. The highlighted portions are the ones that are preferred for this project.

Rows 9,10, and 11are shown here only to show the values of the loop scheme called for in this project. Row 9 shows all outages affecting [redacted] Row 10 shows only the source outages, and row 11 shows distribution outages only. Also attached is the excel spreadsheet showing all calculations and how they were concluded.

Cost per customer minute and cost per customer interruptions saved

ID	Title	Estimate	Number of Events (4 Years)			Customer Minutes (4 Years)			% Live Improv	Cost per Customer Minute			% Li Improv	Number of Customers per Interruption			Cost per Customer Interruptions Saved		
			Non-Storm	Storm	Both	Non-Storm	Storm	Both		Non-Storm	Storm	Both		Non-Storm	Storm	Both	Non-Storm	Storm	Both
1	[redacted]	$697,044.99	2	5	7	73,502	930,001	1,003,503	30%	$126.44	$9.99	$8.26	30%	[redacted]					
2		$607,080.47	6	2	8	591,930	1,828,113	2,420,083	30%	13.07	$6.43	$3.34	30%						
3		$494,872.58	11	5	16	116,382	75,896	192,279	30%	$56.08	$86.94	$34.49	30%						
4		$203,825.15	4	1	5	9,909	103,518	113,427	40%	$205.70	$19.69	$17.97	55%						
5		$492,023.81	19	9	28	647,499	5,952,054	6,599,553	50%	$8.80	$0.66	$0.62	40%						
6		$475,890.33	6	6	12	414,318	6,549,488	6,963,806	50%	$12.06	$0.76	$0.72	40%						
7		$134,204.42	0	0	0	0	0	0	0	0	0	0	0						
8		$172,204.01	1	0	1	1,668	0	1,668	30%	$1,376.53	$0.00	$1,376.53	30%						
		$3,616,541.86																	
A		$1,919,196.17	27	11	38	979,868	12,577,438	13,557,306	50%	$15.07	$1.22	$1.13	40%						
B		$1,919,196.17	5	4	9	282,636	5,690,002	5,973,707	100%	$27.16	$1.35	$1.28	100%						
C		$1,919,196.17	24	11	35	1,945,604	7,784,868	10,730,472	50%	$6.26	$1.97	$1.43	40%						

b. Project Need

[redacted]

c. Project Scope

To meet the above objectives, this project proposes the following:

[redacted]

4. Alternatives Considered

Option 2: This option proposes [redacted] This option is not recommended because [redacted]. See attached word document showing 27.6 supply to [redacted] outages which causes all the customers to remain out until the supply is re-energized.

Project Option Comparison

Preferred option	✓	
[redacted]		
Cost	$2,896,154	$1,990,349.83
Cost / MVA added	N/A	N/A
Cost / CM Saved	$5.59	$5.73
Cost / CI Saved	$2,107.89	$1,745.22

5. Project Schedule

Add any additional milestones that are pertinent to the project

Milestone/Phase Name	Estimated Completion Date
Preliminary Engineering Approval	April 2021
Detail Design	September 2021
Construction	December 2022
In Service Date	January 2023

6. Regulatory Decisions

N/A

7. Codes and Standards

N/A

8. Risk and Contingencies

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2022	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	2022	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach
Internal construction resources not available to perform the work.	2022	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.	2022	Medium	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Storm delays	2022	Low	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. Most of this work will not require system to be abnormal for any extended period of time.

9.

References
1. N/A

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

Attachment	Included in Submittal?
A. Cost Estimate	*YES*
B. Partial PAF	*YES*

Click here for Attachments including Project Needs Statement.

Attachment A: Cost Estimate

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01647 [redacted]

Work Classification

Category: Line
Type: REL1
Type Desc: RELIABILITY IMPROVE SPEC PROJ
Work Type:

Ownership / Management

AWC: Norwalk
Statewide: No
Owner: [redacted]
Manager: [redacted]

Project Information

Status: Draft
SPS #:
AIS Score:
Associated Projects:
Assignment ID:
Patrol Find ID:

Budget Summary - Preferred Option — INSTALL LOOP SCHEME WITH 3 ADJACENT FEEDERS

2022

ID	Title	Status	Rev #	Contingency	Expenditure Amount	Net Estimate
8	RECONDUCTOR 800' OF 336 WITH 556 [redacted]	Prelim	0	24%	$166,823	$166,823
7	[redacted] Reconductor 1000' 35A10	Prelim	0	24%	$130,011	$130,011
6	RECONDUCTOR [redacted]	Prelim	0	24%	$606,332	$606,332
5	LOOP SCHEME 7 RECLOSERS	Prelim	0	24%	$476,648	$476,648
3	Reconductor [redacted]	Prelim	0	24%	$479,408	$479,408
				2022 Total:	$1,859,221	$1,859,221

2023

ID	Title	Status	Rev #	Contingency	Expenditure Amount	Net Estimate
1	[redacted] Reconductor W/SC	Prelim	0	28%	$697,045	$697,045
				2023 Total:	$697,045	$697,045
				Total Project:	$2,556,266	$2,556,266

Attachment B: Partial PAF

Operations Project Authorization Form

Date Prepared: 04/08/2021	[redacted] **TDRP**
Company/ies: CT	**Project ID Number: CD01647**
Organization: Electric	**Class(es) of Plant: Distribution**
Project Initiator: [redacted]	**Project Category: Reliability**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Project Purpose: Improve Reliability**
Estimated in service date: 12/31/2022	**If Transmission Project: PTF? NA**
Eng. /Constr. Resources Budgeted? No	**Capital Investment Part of Original Operating Plan?**
Authorization Type: Initial Funding	**O&M Expenses Part of the Original Operating Plan?**
Total Request: $2,556,266	

Executive Summary

[redacted]

Project Costs Summary

	Prior Authorized	2022	2023	2024+	Totals
Capital Additions - Direct	$0	$1,060,046	$397,424	$0	$1,457,470
Less Customer Contribution	$0	$0	$0	$0	$0
Removals net of Salvage ____%	$0	$97,808	$36,669	$0	$134,477
Total - Direct Spending	$0	$1,157,854	$434,094	$0	$1,591,947
Capital Additions - Indirect	$0	$630,372	$236,334	$0	$866,706
Subtotal Request	$0	$1,788,225	$670,428	$0	$2,458,653
AFUDC	$0	$14,258	$5,345	$0	$19,603
Total Capital Request	$0	$1,802,483	$675,773	$0	$2,478,256
O&M	$0	$56,738	$21,272	$0	$78,010
Total Request	$0	$1,859,221	$697,045	$0	$2,556,266

Financial Evaluation

	2022	2023	2024+	Total
Straight Time Labor	$78,724	$29,515	$0	$108,239
Overtime Labor	$14,367	$5,387	$0	$19,754
Outside Services	$790,510	$296,372	$0	$1,086,882
Materials	$270,814	$101,531	$0	$372,345
Other, including contingency amounts (describe)	$3,438	$1,289	$0	$4,727
Total Direct Costs	**$1,157,854**	**$434,094**	**$0**	**$1,591,947**

Indirect Capital Costs	2022	2023	2024+	Total
Indirects/Overheads (including benefits)	$630,372	$236,334	$0	$866,706
Capitalized interest or AFUDC, if any	$13,819	$5,181	$0	$19,000
Total Indirect Costs	**$644,191**	**$241,515**	**$0**	**$885,706**
Total Capital Costs	**$1,802,045**	**$675,609**	**$0**	**$2,477,654**
Less Total Customer Contribution	**$0**	**$0**	**$0**	**$0**
Total Capital Project Costs	**$1,802,045**	**$675,609**	**$0**	**$2,477,654**
Total O&M Project Costs	**$57,176**	**$21,436**	**$0**	**$78,612**

Total Project Cost	**$1,859,221**	**$ 697,045**	**$ -**	**$2,556,266**

Technical Justification

Project Need Statement

[redacted]

Project Objectives

The main objectives of this project are as follows.

[redacted]

Project Scope

In order to meet the above objectives, this project proposes the following:

[redacted]

Major Materials

- 10,000’ of 556 kcmil tree wire.
- 12 Reclosers - Cooper Nova 15kV with Form 6 Controls.
- 65 Eversource poles.
- 3 GOAB switches – 15kV.

Background / Justification

This project greatly increases reliability to all [redacted] as well. Table below shows parts of the project and how the cost per customer minutes calculations. The highlighted portions are the ones that are preferred for this project.
Rows 9,10, and 11are shown here only to show the values of the loop scheme called for in this project. Row 9 shows all outages affecting [redacted], Row 10 shows only the source outages, and row 11 shows distribution outages only. Also attached is the excel spreadsheet showing all calculations and how they were concluded.

Cost per customer minute and cost per customer interruptions saved

ID	Title	Estimate	Number of Events (4 Years)			Customer Minutes (4 Years)			% CM improv	Cost per Customer Minute			% CI Improv	Number of Customers per Interruption			Cost per Customer Interruptions Saved		
			Non-	Storm	Both	Non-Storm	Storm	Both		Non-Storm	Storm	Both		Non-Storm	Storm	Both	Non-Storm	Storm	Both
1	[redacted]	$697,044.99	[redacted]			73,502	930,001	1,003,503	30%	$126.44	$9.99	$9.26	30%	[redacted]					
2		$607,081.47				591,970	1,828,113	2,420,083	30%	13.67	$4.43	$3.34	30%						
3		$494,872.58				116,383	75,896	192,279	30%	$56.98	$86.94	$34.49	30%						
4		$203,825.15				9,909	103,518	113,427	40%	$205.70	$19.69	$17.97	55%						
5		$492,023.81				447,499	5,952,054	6,399,553	50%	$8.80	$0.66	$0.62	40%						
6		$625,891.33				414,318	6,549,488	6,963,806	50%	$12.09	$0.76	$0.72	40%						
7		$134,204.42				0	0	0	0	0	0	0	0						
8		$172,204.03				1,668	0	1,668	30%	$1,376.53	$0.00	$1,376.53	30%						
		$2,616,241.16																	
A		$1,919,196.17				979,868	12,577,438	13,557,306	50%	$15.67	$1.22	$1.13	40%						
B		$1,919,196.17				282,630	5,697,002	5,973,707	100%	$27.16	$1.35	$1.28	100%						
C		$1,919,196.17				2,945,604	7,784,868	10,730,472	50%	$5.21	$1.97	$1.43	40%						

Top contributing devices for SAIDI and SAIFI

Name	Circuit	Prior Four Years All Customer Affected Count	Prior Four Years All Customer Min. Interrupted	Prior Four Years All Number of Events	%CUST	%CMI	Street
[redacted]				6	24%	34%	
				8	13%	14%	
				2	11%	1%	
				2	10%	0%	
				6	7%	1%	
				19	5%	1%	
				5	4%	6%	
				6	4%	5%	
				2	3%	1%	
				1	1%	0%	
				2	1%	6%	
				1	1%	3%	
				2	1%	1%	
				5	1%	2%	

Comparison between source events and distribution events

	Prior Four Years All Customer Affected Count	Prior Four Years All Customer Min. Interrupted	%CUST	%CMI
[redacted]	13,719	5,973,707	45%	35%
	16,819	10,969,341	55%	65%
	30,538	16,943,048	100%	100%

Business Process and / or Technical Improvements

[redacted]

Alternatives Considered with Cost Estimates

Option 2: This option proposes to reconductor the zone that has experienced the most outages and also a small sidetap. This option is not recommended because the chances of a station outage affecting all the customers is far greater than a zone outage and therefore, reconfiguring the loop scheme better protects all the customers on the [redacted]. See attached word document showing 27.6 supply to [redacted] outages which causes all the customers to remain out until the supply is re-energized.

Project Option Comparison

Preferred option	✓	
[redacted]		
Cost	$2,616,241.16	$1,990,349.83
Cost / MVA added	N/A	N/A
Cost / CM Saved	$5.59	$5.73
Cost / CI Saved	$2,107.89	$1,745.22

Milestone/Phase Name	Estimated Completion Date
Preliminary Engineering Approval	April 2021
Detail Design	September 2021
Construction	December 2022

Project Schedule

Regulatory Approvals

TDRP

Eversource Transmission-Distribution Reliability Performance (TDRP) Projects address reliability issues associated with the Worst Performing Top 100 circuits in Connecticut. In doing so, Eversource maintains compliance with Docket 86-12-03. Eversource is required to report the status of the actions taken to improve performance for each Circuit topping the "Worst 100" list. Updates

are required each year consecutively for a total of four years following a circuit's appearance on the list.

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2022	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	2022	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach
Internal construction resources not available to perform the work.	2022	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.	2022	Medium	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Storm delays	2022	Low	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. Most of this work will not require system to be abnormal for any extended period of time.

References

None

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



GEOGRAPHIC MAP
BEFOE AND AFTER.p