EVERSOURCE

Project Approval Form

Project Title: [redacted]	**Project Number: CD01814**
Date Prepared: 09/27/2023	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** ISLANDED SUBSTATION PROGRAM
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: 12/31/2024	
Total Capital Request: $1073.3	**Authorization Type:** Full Funding

1. Executive Summary

This project was established to develop a recovery plan for the [redacted]

Project CD01814 received Initial Funding authorization of $724.8K at the 11/10/2021 OCRC meeting. The detail design has been completed and we are requesting Full Funding authorization of $1,073.3, an increase of $348.5K or 48% of the Initial Funding authorization. There is no change in scope. This project is also being revised to reflect a change in the in-service date to 12/31/2024 due to the unavailability of step transformers needed to complete this project.

The additional capital is due to in part to increased material costs. In particular 500 kVA transformers are estimated to be an additional $120K in direct cost. Labor costs are also higher than what was in the original estimate. The current approved estimate was prepared using legacy unit costs, which were about 30% lower than the estimates used today.

- Project Location:
  - Division: Central
  - District: Cheshire AWC
  - Town: Wolcott

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	Year 2022	Year 2023	Year 2024+	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	117.8	43.0	13.8	174.6
Outside Services	28.2	50.1	0.2	78.6
Materials	104.2	-4.2	160.4	260.4
Removals	25.8	9.2	23.8	58.8
Risk and Contingency	0.0	0.0	74.9	74.9
Other	10.8	3.9	0.0	14.8
Subtotal – Direct Costs	**286.8**	**102.0**	**273.2**	**662.0**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	232.4	99.8	79.0	411.3
Capitalized interest or AFUDC, if any	10.5	15.4	-25.9	0.0
Subtotal – Indirect Costs	**242.9**	**115.2**	**53.2**	**411.3**
Total Gross Capital Costs	**529.7**	**217.2**	**326.3**	**1,073.3**
Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Total Net Capital Project Costs	**529.7**	**217.2**	**326.3**	**1,073.3**

Explain unique payment provisions, if applicable:

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

This project was created as part of an initiative to improve circuit reliability by [redacted]

b. Project Need

This project proposes installing [redacted]. This will allow for field switching to pick up all customers rather than installing generation or a mobile transformer.

[redacted]

Due to the high phase imbalance, [redacted]

c. Project Scope

The scope of this project is as follows:

[redacted]

4. Alternatives Considered

Project Option Comparison

	Option	
[redacted]		
Capital Cost	$1,073.3K	n/a
Expense Cost	$27.6K	n/a
Total Cost	$1,100.9K	n/a
Preferred option	X	

Do nothing was not an option as it would leave all customers supplied by this substation exposed to a long duration outage for a failure within the substation.

5. Project Schedule

Add any additional milestones that are pertinent to the project

Milestone/Phase Name	Estimated Date
Partial Approval	11/10/2021
100% Detailed Engineering Completion	4/20/2023
Fully Funded	8/23/2023
Construction Start	1/1/2022
In Service Date	12/31/2024

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.	2024	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	2024	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach.
Internal construction resources not available to perform the work.	2024	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.	2023	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2024	Medium	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2024	Low	If storm activity delays work, we may be forced to use external resources.

9. References

- N/A

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

Attachment	Included in Submittal?
A. Geographic Map	*YES*
B. System and Station One-Lines	*YES*
C. Load Summary	*YES*
D. Initial Funding PAF	*YES*

Attachment A – Geographic Map

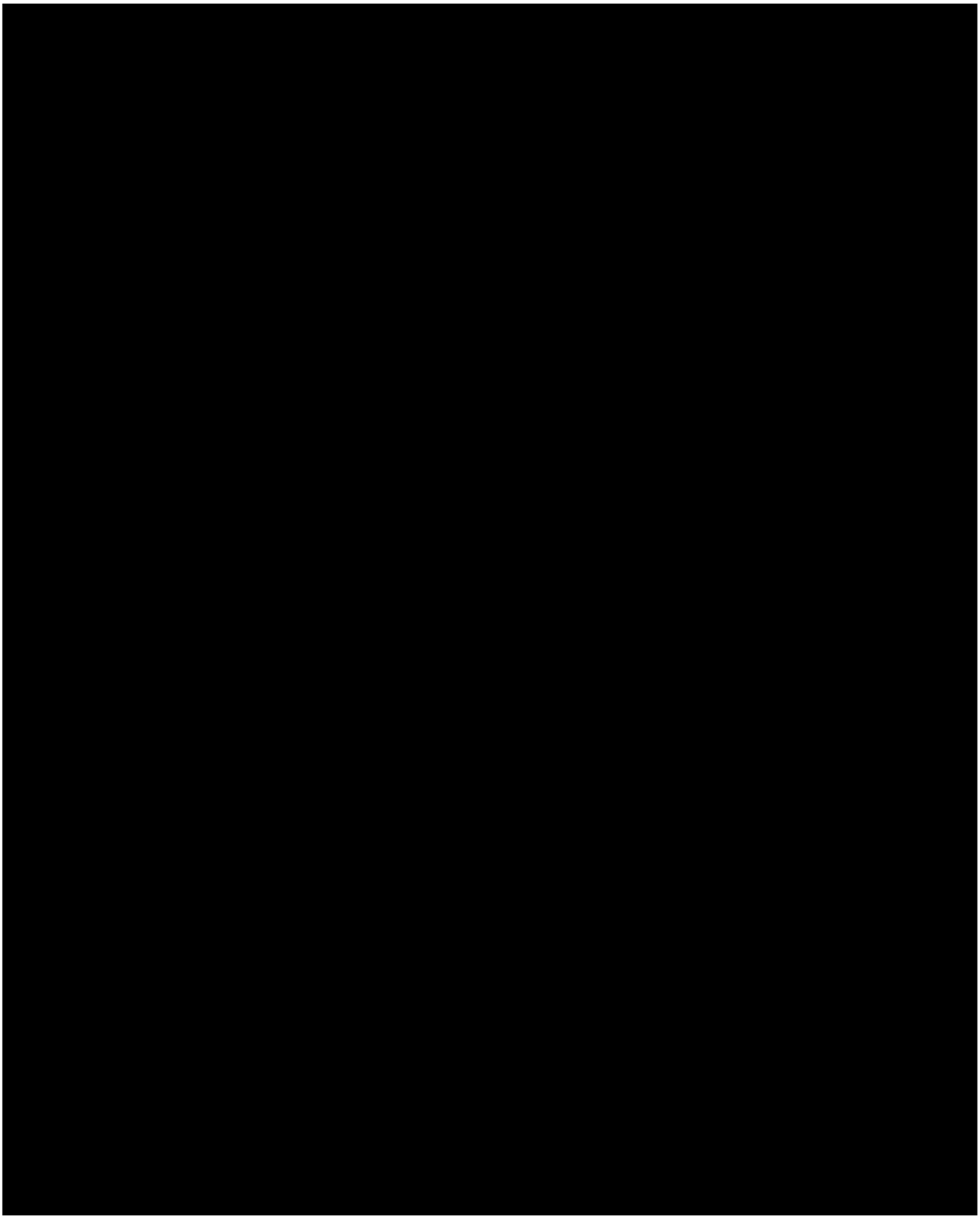


Attachment B – One-lines

1. Existing One-Line

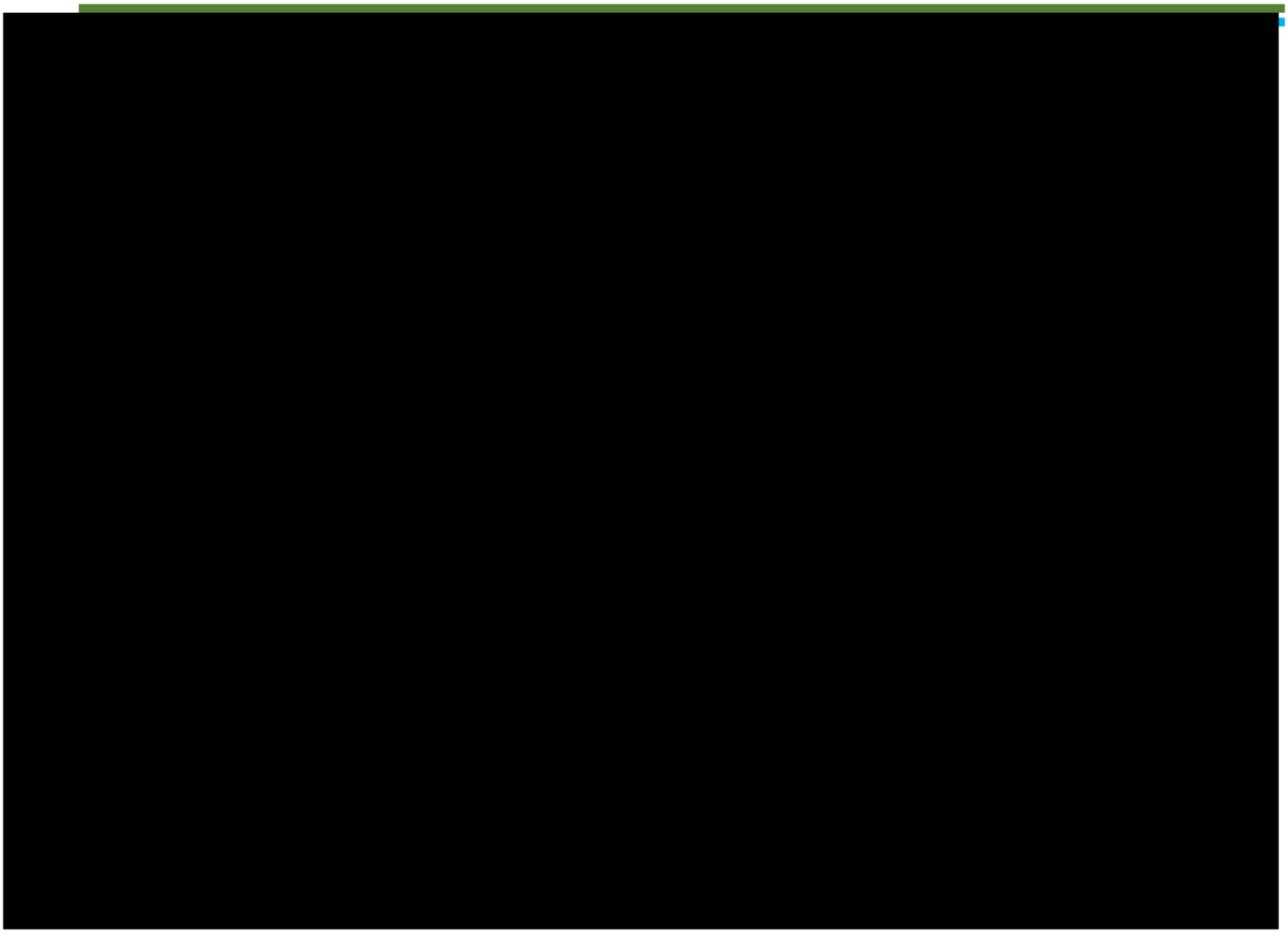


2. Proposed One-Line



Attachment C– Load Summary





Operations Project Authorization Form

Date Prepared: November 10, 2021	**Project Title: [redacted] [redacted]- Alternate Sources**
Company/ies: Eversource CT	**Project ID Number: CD01814**
Organization: Distribution Electric	**Class(es) of Plant: Distribution**
Project Initiator: [redacted]	**Project Category: Line**
Project Manager: [redacted]	**Project Type: Islanded Substation**
Project Sponsor: [redacted]	**Project Purpose: Recovery Plan for Substation**
Estimated in service date: 12/31/2023	**If Transmission Project: PTF? N/A**
Eng. /Constr. Resources Budgeted? Yes	**Capital Investment Part of Original Operating Plan? Yes**
Authorization Type: Preliminary Funding	**O&M Expenses Part of the Original Operating Plan? Yes**
Total Request: $725k	

Financial Requirements:

Project Authorization

ERM: _____

FP&A: _____

Executive Summary

This project is being established to provide alternate sources to the [redacted] Substation. [redacted]

[redacted]

Project Costs Summary

Note: Dollar values are in thousands

	Prior Authorized	2021	2022	2023+	Totals
Capital Additions - Direct	$0	$0	$201	$194	$395
Less Customer Contribution	$0	$0	$0	$0	$0
Removals net of Salvage ____%	$0	$0	$27	$26	$53
Total - Direct Spending	$0	$0	$228	$220	$448
Capital Additions - Indirect	$0	$0	$118	$114	$231
Subtotal Request	$0	$0	$346	$333	$679
AFUDC	$0	$0	$5	$5	$10
Total Capital Request	$0	$0	$351	$339	$690
O&M	$0	$0	$18	$17	$35
Total Request	$0	$0	$369	$356	$725

Financial Evaluation

Note: Dollar values are in thousands

Direct Capital Costs	2021	2022	2023+	Total
Straight Time Labor	$0	$26	$25	$51
Overtime Labor	$0	$5	$5	$9
Outside Services	$0	$161	$155	$316
Materials	$0	$35	$34	$69
Other, including contingency amounts (describe)	$0	$2	$2	$4
Total Direct Costs	**$0**	**$228**	**$220**	**$448**

Indirect Capital Costs	2021	2022	2023+	Total
Indirects/Overheads (including benefits)	$0	$118	$114	$231
Capitalized interest or AFUDC, if any	$0	$5	$5	$10
Total Indirect Costs	**$0**	**$123**	**$118**	**$241**
Total Capital Costs	**$0**	**$351**	**$338**	**$689**
Less Total Customer Contribution	**$0**	**$0**	**$0**	**$0**
Total Capital Project Costs	**$0**	**$351**	**$338**	**$689**
Total O&M Project Costs	**$0**	**$18**	**$18**	**$36**
Total Project Cost	**$ 0**	**$ 369**	**$ 356**	**$ 725**

Technical Justification:

Project Need Statement

This project proposes installing [redacted]

With this design and for the loss of the [redacted]

[redacted]

Due to the high phase imbalance, [redacted] overload the step transformers during the loss of the [redacted] transformer at peak load.

Project Objectives

This project's goal is to have a [redacted]

Project Scope

The scope of this project is as follows:

[redacted]

Major Material:
2022:

- 2 GOAB
- 9 500 KVA step-downs (Stock Code 534747)
- 900 ft of 556 TW
- 200 ft. of 336 TW
- 13 poles

2023:

- 6 500 KVA step-downs (Stock Code 534747)

- 1 GOLB
- 7,109 ft. of 1/0 TW
- 26 poles

Background / Justification

The project was created as part of an initiative to improve circuit reliability by [redacted]

Business Process and / or Technical Improvements:

Provide backup without generation for the failure of the substation transformer.

Alternatives Considered with Cost Estimates

Option 1 – Do nothing but [redacted]

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Preliminary Approval	November 2021
Detailed Design	February 2022
Construction Start Date	June 2022
Construction End Date	December 2023

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.	2023	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	2023	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.
Storm delays	2023	Low	If storm activity delays work, we may be forced to use external resources.

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A Northeast Utilities Company

Specific Project Proposal - Project #: CD01814

[redacted]Recovery Plan

Work Classification		Ownership / Management	
Category:	Line	AWC:	Cheshire
Type:	SRIS	Statewide:	No
Type Desc:	ISLANDED SUBSTATION PROGRAM	Owner:	[redacted]
Work Type:		Manager:	[redacted]

Project Information

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

Budget Summary - Preferred Option

[redacted]Recovery Plan

2022

ID	Title	Status	Rev #	Contingency	Expenditure Amount	Net Estimate
4	Entire [redacted]ie with 30L23	Draft	0	24%	$120,451	$120,451
5	3-500 KVA [redacted]Tie with [redacted]	Draft	0	24%	$156,621	$156,621
6	Mad River Half Recond.	Draft	0	24%	$91,539	$91,539
				2022 Total:	**$368,610**	**$368,610**

2023

ID	Title	Status	Rev #	Contingency	Expenditure Amount	Net Estimate
3	[redacted]tie with [redacted]	Draft	0	28%	$356,198	$356,198
				2023 Total:	**$356,198**	**$356,198**
				Total Project:	**$724,809**	**$724,809**

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Specific Project Proposal - Project #: CD01814

[redacted]ecovery Plan

Design Alternative CD01814-03

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	28.00%
SubTotal:	$278,280
Contingency Amount:	$77,918
Estimate:	$356,198
Reimbursement:	$0
Net Amount:	**$356,198**
Description:	

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$3,509.60
TRAFFIC OH/DB/UG - Traffic Control - Flagger	16-ALL19			$5,000.00
SECTIONALIZE OH - Recloser Control - setting changes only Change the 13H98-70S settings to coordinate with 140k fuse downstream	16-OH39A			$4,885.60
SECTIONALIZE OH - Cutouts or Arresters - 3ph Install 100k fuse on pole 1046	16-OH20			$2,315.20
XF OH - Stepdown - 1ph - on POLE Install 2-500 KVA banks on 3 new poles between 1046 and 1047.	16-OH49			$40,800.00
SECTIONALIZE OH - GOAB Switch Install a normally open GOLB on pole 1051	16-OH44			$20,566.40
SECTIONALIZE OH - Cutouts or Arresters - 3ph Install Solid on pole 1047	16-OH20			$2,315.20
POLE OH - JUNCTION POLE - 3ph (CL&P custodian) Poles 1050, 1048, 1046, 1035	16-OH14A			$23,380.80
OH WIRE OH - Reconductor w/ 175 Mil Tree Wire - 3ph -1/0 Reconductor from pole 1035 to 1047 on Spindle Hill Rd. Also includes Dead span	16-OH26a			$110,880.00

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Specific Project Proposal - Project #: CD01814

[redacted] Recovery Plan

Design Alternative — CD01814-03

OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) Reconductor from pole 1047 to pole 1050 on Spindle Hill Rd.	16-OH25	[redacted]	$12,000.00
SECTIONALIZE OH - Cutouts or Arresters - 1ph Replace 15k fuse on pole 1042	16-OH19		$1,371.20
SECTIONALIZE OH - Cutouts or Arresters - 3ph Replace 65k fuse with Solid on pole 1035.	16-OH20		$2,315.20
SECTIONALIZE OH - Cutouts or Arresters - 1ph Replace cutouts for the 6 transformers on Spindle Hill Rd.	16-OH19		$8,227.20
POLE OH - POLE - 3ph (CL&P custodian) Replace poles 1036-1045, 1047-S, & 1049 (12 total)	16-OH14		$28,056.00
XF OH - OH XF - 1ph Replace transformers on pole 1049, 1044, 1041, 1040, 1039, & 1037	16-OH45		$12,657.60

Associated / Impacted Devices

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

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Specific Project Proposal - Project #: CD01814

[redacted] Recovery Plan

Design Alternative CD01814-03

Reliability Projection

Title:

Outage Start Date: 1/1/2007 Outage End Date: 8/19/2021 Years History: 14.64

[redacted]

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Specific Project Proposal - Project #: CD01814

[redacted] Recovery Plan

Design Alternative CD01814-04

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$97,138
Contingency Amount:	$23,313
Estimate:	$120,451
Reimbursement:	$0
Net Amount:	**$120,451**

Description:

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$3,509.60
TRAFFIC OH/DB/UG - Traffic Control - Flagger	16-ALL19			$7,000.00
SECTIONALIZE OH - GOAB Switch A normally open GOLB on pole 4019	16-OH44			$20,566.40
EQUIPMENT OH - Conversion - CUTOVER Change the phase on the Transformer on pole 2597 from 25 AC to 25 BC	16-OH58			$535.20
XF OH - Stepdown - 1ph - on POLE Install 2-500 KVA on poles: 4095, New pole, and 4096	16-OH49	[redacted]		$40,800.00
SECTIONALIZE OH - Cutouts or Arresters - 3ph Install new 140k fuse on Pole 4097	16-OH20			$2,315.20
SECTIONALIZE OH - Cutouts or Arresters - 3ph Install Solid on pole 4094	16-OH20			$2,315.20
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 336 kcmil Pole 4094 & pole 2033 (200'). Also needs tree trimming in that area.	16-OH26b			$13,920.00
OTHER OTHER Remove Regulator on pole 783 on Mad River Rd.	16-ALL14			$1,500.00

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Specific Project Proposal - Project #: CD01814

[redacted] Recovery Plan

Design Alternative — CD01814-04

POLE	16-OH14	4676.00 / LOC	1	$4,676.00
OH - POLE - 3ph (CL&P custodian) Replace pole 2033 & 4094				

Associated / Impacted Devices

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

Reliability Projection

Title:

Outage Start Date: 1/1/2007 Outage End Date: 9/22/2021 Years History: 14.73

[redacted]

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Specific Project Proposal - Project #: CD01814

[redacted]ecovery Plan

Design Alternative CD01814-05

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$126,307
Contingency Amount:	$30,314
Estimate:	$156,621
Reimbursement:	$0
Net Amount:	**$156,621**
Description:	

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$3,509.60
TRAFFIC OH/DB/UG - Traffic Control - Flagger	16-ALL19			$5,000.00
XF OH - Stepdown - 1ph - on POLE Install 1 500 KVA step-down on 3 of the new poles	16-OH49			$20,400.00
SECTIONALIZE OH - Cutouts or Arresters - 3ph Install 140k fuse on pole 1413-S	16-OH20			$2,315.20
SECTIONALIZE OH - GOAB Switch Install normally open GOLB on new pole next to 140k fuse	16-OH44			$20,566.40
POLE OH - POLE - 3ph (CL&P custodian) Pole 1413-S & pole 2931	16-OH14			$4,676.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil Reconductor on 4 new poles	16-OH27			$69,840.00

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Specific Project Proposal - Project #: CD01814

[redacted] Recovery Plan

Design Alternative CD01814-05

Associated / Impacted Devices

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

Reliability Projection

Title:

Outage Start Date: 1/1/2007 Outage End Date: 10/28/2021 Years History: 14.83

[redacted]

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Specific Project Proposal - Project #: CD01814

[redacted]Recovery Plan

Design Alternative CD01814-06

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$73,822
Contingency Amount:	$17,717
Estimate:	$91,539
Reimbursement:	$0
Net Amount:	**$91,539**
Description:	

Item Description	CU	$ / Per	Qty	Amount
OH WIRE	16-OH25	[redacted]		$72,216.00
OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) Run 3rd phase of 1/0 TW spanning 3,009ft. on Mad River Rd. from pole 1957 to 642				
EQUIPMENT	16-OH58	[redacted]		$535.20
OH - Conversion - CUTOVER Switch tap on Boundline Rd./Bilby Dr. from BC to AC. Fuse_OH 1598				
EQUIPMENT	16-OH58			$535.20
OH - Conversion - CUTOVER Switch tap on Sunset Lane from BC to Ab. Fuse_OH 1616				
EQUIPMENT	16-OH58			$535.20
OH - Conversion - CUTOVER Switch tap west of pole 642 on Spindle Hill Rd. from BC to AC.				

Associated / Impacted Devices

Status	Type / SysID	Street / Cross St	Structure / Town	Circuit	Map	Cust	Notes