EVERSOURCE

Project Approval Form

Project Title: [redacted] Islanded Substation	Project Number: CD01822
Date Prepared: 09/29/2023	**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: 12/31/2023	
Total Capital Request: $533.7K	**Authorization Type:** Full Funding

1. Executive Summary

This project was established to address the [redacted]

- Approved Initial Funding Authorization: $305.7K at the 11/18/2021 CT-PAC meeting.
- Requesting Full Funding authorization: $533.7K, a difference of $228.0K or 175% of the Initial Funding authorization.
- Project Location:
  - Division: Central
  - District: Cheshire AWC
  - Town: Prospect

The variance is due to the following:

- $124.6K - Increased labor and material charges. The legacy estimating units used to produce the Initial Funding estimate are about 30% lower than the estimates used today, which were updated to reflect increased labor & material costs.
- $103.3K – Underestimated Overhead Conductor. The scope of this project includes [redacted]

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	Year 2023	Year 2024	Year 2025+	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	41.4	0.0	0.0	41.4
Outside Services	164.3	0.0	0.0	164.3
Materials	34.2	0.0	0.0	34.2
Removals	40.0	0.0	0.0	40.0
Risk and Contingency	37.2	0.0	0.0	37.2
Other	0.0	0.0	0.0	0.0
Subtotal – Direct Costs	**317.1**	**0.0**	**0.0**	**317.1**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	216.5	0.0	0.0	216.5
Capitalized interest or AFUDC, if any	0.0	0.0	0.0	0.0
Subtotal – Indirect Costs	**216.5**	**0.0**	**0.0**	**216.5**
Total Gross Capital Costs	**533.7**	**0.0**	**0.0**	**533.7**
Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Total Net Capital Project Costs	**533.7**	**0.0**	**0.0**	**533.7**

Explain unique payment provisions, if applicable:

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

[redacted]

b. Project Need

[redacted]

c. Project Scope

The scope of this project is as follows:



4. Alternatives Considered



Project Option Comparison

	Option	
[redacted]		
Authorization Type	Full	Partial (see note)
Capital Cost	$533.6K	$458.9K
Expense Cost	$18.8K	$16.2K
Total Cost	$552.4K	$475.1K
Total Cost / MVA added	N/A	N/A
Total Cost / CM Saved	$1,544.57/CM	$1,328.33/CM
Total Cost / CI Saved	$86.6K/CI	$74.5K/CI
Preferred option	X	

Note: Costs for option 2 were updated to reflect the added costs as stated in the Executive Summary.

5. Project Schedule

Add any additional milestones that are pertinent to the project.

Milestone/Phase Name	Estimated Date
Partial Approval	11/18/2021
100% Detailed Engineering Completion	9/22/2022
Fully Funded	10/4/2023
Construction Start	10/1/2023
In Service Date	12/31/2023

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.	2023	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	2023	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach.
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.
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	2023	Low	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2023	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2023	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	2023	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	2023	Low	Use of mats and specialty equipment, only work during certain times of the year.

9. References

References
1. None

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

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

Attachment B – Maps







Attachment C – One-Lines







Attachment D – Load Summary

MIDDLEBURY
PROJECT NUMBER: CD01822
PROJECT NAME: [redacted]

MIDDLEBURY RD 18J LOADSHEET

[redacted]NSTALL BACK-UP STEPS

[redacted]

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Project Authorization Form

Operations Project Authorization Form

Date Prepared:9/08/2021	**Project Title: [redacted] Install Back-Up Steps**
Company/ies: Eversource CT	**Project ID Number: CD01822**
Organization: Distribution Design	**Class(es) of Plant: Substation**
Project Initiator: [redacted]	**Project Category: Islanded Substation**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor [redacted]	**Project Purpose: Create a backup to School House 16S S/S**
Estimated in service date: 12/31/2023	**If Transmission Project: PTF? NA**
Eng. / Constr. Resources Budgeted? No	**Capital Investment Part of Original Operating Plan? Yes**
Authorization Type: Preliminary	**O&M Expenses Part of the Original Operating Plan? Yes**
Total Request: $ 305,678	

Financial Requirements:

Project Authorization
ERM: _____

FP&A: _____

Executive Summary

[redacted]

Project Costs Summary
Note: Dollar values are in thousands

	Prior Authorized	2023	2024	2025+	Totals
Capital Additions - Direct	$0	$166	$0	$0	$166
Removals net of Salvage ___%	$0	$22	$0	$0	$22
Total - Direct Spending	$0	$189	$0	$0	$189
Capital Additions - Indirect	$0	$98	$0	$0	$98
Subtotal Request	$0	$286	$0	$0	$286
AFUDC	$0	$4	$0	$0	$4
Total Capital Request	$0	$291	$0	$0	$291
O&M	$0	$15	$0	$0	$15
Total Request	$0	$306	$0	$0	$306

Financial Evaluation

Note: Dollar values are in thousands

Direct Capital Costs	2023	2024	2025+	Total
Straight Time Labor	$21	$0	$0	$21
Overtime Labor	$4	$0	$0	$4
Outside Services	$133	$0	$0	$133
Materials	$29	$0	$0	$29
Other, including contingency amounts (describe)	$2	$0	$0	$2
Total Direct Costs	**$189**	**$0**	**$0**	**$189**

Indirect Capital Costs	2023	2024	2025+	Total
Indirects/Overheads (including benefits)	$98	$0	$0	$98
Capitalized interest or AFUDC, if any	$4	$0	$0	$4
Total Indirect Costs	**$102**	**$0**	**$0**	**$102**
Total Capital Costs	**$291**	**$0**	**$0**	**$291**
Less Total Customer Contribution	**$0**	**$0**	**$0**	**$0**
Total Capital Project Costs	**$291**	**$0**	**$0**	**$291**
Total O&M Project Costs	**$15**	**$0**	**$0**	**$15**
Total Project Cost	**$ 306**	**$ -**	**$ -**	**$ 306**

Technical Justification:

Project Need Statement



Project Objectives

[redacted]

Project Scope

[redacted]

Major Materials

- 6-500KVA 13.8KV/4.8KV Step Transformers Stock Code 534995
- 1-333 KVA 13.8KV/4.8KV Step Transformer Stock Code 534997
- 1-167KVA 13.8KV/4.8KV Step Transformer Stock Code 534745
- Single Phase Radial Recloser
- 4 - 600/900 Amps Disconnect Switches
- 17 Transformers

Background / Justification

This project provides an inexpensive solution to restore all customers in less than two hours without the need for a mobile transformer.

Business Process and / or Technical Improvements:

[redacted]

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Preliminary Engineering	11/2021
Detail Design	01/2022
Full Funding	03/2022
Construction Start	05/2023

Regulatory Approvals
None

References
N/A

Risks and Risk Mitigation Plans

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Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01822

[redacted] Island Substation

Work Classification

Category: Line
Type: SRIS
Type Desc: ISLANDED SUBSTATION PROGRAM
Work Type:

Ownership / Management

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

Project Information

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

Budget Summary - Preferred Option

Transfer Loads without recond

2023

ID	Title	Status	Rev #	Contingency	Expenditure Amount	Net Estimate
2	[redacted]	Draft	0	28%	$305,678	$305,678
				2023 Total:	$305,678	$305,678
				Total Project:	$305,678	$305,678

Project Option Summary

ID	Description	Segments	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)	Prfrd
O1	Transfer Loads without recond	2	$305,678	$0	100%	$0.00	$0.00	☑
O2	Transfer Loads with recond	1	$39,398	$0	100%	$0.00	$0.00	☐

Segments

ID	Title	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)
1	Install a step down XF @ P. 1343 on Summ	$39,398			$0.00	$0.00
2	Transfer load to 30L28 & recond Summit R	$305,678			$0.00	$0.00

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Project Approval Form

Design Alternative CD01822-01

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	28.00%
SubTotal:	$30,780
Contingency Amount:	$8,618
Estimate:	$39,398
Reimbursement:	$0
Net Amount:	**$39,398**

Description:

Item Description	CU	$ / Per	Qty	Amount
XF OH - Stepdown - 1ph - on POLE	16-OH49	[redacted]		$6,800.00
POLE OH - POLE - 1ph (CL&P custodian) Install a new pole b/w pole 1343 & pole 13445	16-OH13			$2,884.00
XF OH - OH XF - 1ph Upgrade the 4.8KV XF to 13.8KV	16-OH45			$21,096.00

Associated / Impacted Devices

Status	Type / SysID	Street / Cross St	Structure / Town	Circuit	Map	Cust	Notes
Existing	[redacted]					0	

Project Approval Form

Design Alternative CD01822-02

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	28.00%
SubTotal:	$238,811
Contingency Amount:	$66,867
Estimate:	$305,678
Reimbursement:	$0
Net Amount:	**$305,678**
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 - Police Officer	16-ALL18			$15,000.00
OH WIRE OH - Neutral	16-OH31			$12,160.00
OH WIRE OH - Remove circuit wire (1 phase)	16-OH37			$4,440.00
SECTIONALIZE OH-Vertical Disconnect Switches-600/900 amp 3-1ph	16-OH43			$41,132.80
EQUIPMENT OH - Conversion Prep Work - 1ph	16-OH56			$8,652.00
EQUIPMENT OH - Conversion - CUTOVER	16-OH58			$3,746.40
POLE OH - POLE - 1ph (CL&P custodian)	16-OH13			$8,652.00
SECTIONALIZE OH - Hydraulic Recloser - 1ph	16-OH40			$6,855.20

Project Approval Form

Design Alternative			CD01822-02
XF OH - Stepdown - 1ph - on POLE Install 6-500KVA XF by the SS	16-OH49	[redacted]	$40,800.00
XF OH - Stepdown - 1ph - on POLE Install on step donw xf at pole 3917	16-OH49		$6,800.00
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge) Recond the downstream of fuse pole 1343 2#6 to 1/0 ACSR TW	16-OH25		$44,400.00
XF OH - Stepdown - 1ph - on POLE Upgrade the 2-333KVA to 3-333KVA on Prospect Rd	16-OH49		$6,800.00
XF OH - OH XF - 1ph Upgrade the 4.8KV XF to 13.8KV downstream of fuse pole 1343 on Summit Rd	16-OH45		$21,096.00
XF OH - OH XF - 1ph Upgrade the 4.8KV XF to 13.8KV downstream of fuse pole 255 on Summit Re	16-OH45	[redacted]	$14,767.20