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Operations Project Authorization Form

Approved on May 25, 2023 EPAC

Link to Meeting Minutes

Project Title: [redacted] Transformer Replacements	**Project Number: CS00392**
Date Prepared: 05/16/2023	**Company: Eversource CT**
Organization: System Planning	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - Transformer**
Managing Organization: Transmission / Major Projects	**Schedule ID#: CS003921**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Estimated in service date: February 2025	**Emergency Related Request? No**
Eng./Constr. Resources Budgeted? Yes	**Facility Type (check all that apply):** ☐ PTF ☐ non-PTF ☒ Distribution ☐ N/A (General Plant)
Total Capital Request: $12,632K	**Authorization Type: Full Funding**

[1] Executive Summary

[redacted]

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[2] PROJECT COSTS SUMMARY

Note: Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2023 to Go	2024	2025	2026	Total
1. ROW / Easements / Land purchases							
2. Environmental Approvals / Permits							
3. Outreach	$2	$0	$3	$12	$1		$16
4. Siting Approvals / Permits	$26	$1	$29	$126	$12		$168
5. Engineering / Design	$651	$36	$185	$235	$93		$549
6. Materials (Eversource purchased)			$693	$2,855	$2		$3,550
7. Construction (incl materials by contractors)		$4	$491	$1,687	$245		$2,427
8. Testing / Commissioning				$503	$225		$728
9. PMT Project Mgmt. Team	$151	$74	$73	$93	$54		$294
10. Removals				$644			$644
11. Other	$95						
12. Risks			$253	$542	$151		$946
Project Directs Total w/Risks	**$924**	**$115**	**$1,727**	**$6,697**	**$783**		**$9,322**
13. Indirects/Overhead	$151	$101	$383	$1,554	$286		$2,324
14. AFUDC	$5	$13	$83	$421	$63		$581
Project Total - Baseline Budget	**$1,081**	**$229**	**$2,193**	**$8,673**	**$1,133**		**$12,227**
15. Contingency	$17		$74	$301	$30		$405
Project Total - Funding Approval Level	**$1,098**	**$229**	**$2,267**	**$8,974**	**$1,162**		**$12,632**
16. Reimbursables/Customer Contribution							
Project Total (less reimbursables)	**$1,098**	**$229**	**$2,267**	**$8,974**	**$1,162**		**$12,632**
Total O&M							
TOTAL REQUEST	**$1,098**	**$229**	**$2,267**	**$8,974**	**$1,162**		**$12,632**

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Detail other costs, project risk items and their allocations:

Risk	Allocation
1. Potential UG Obstructions	$110,000
2. Severe Weather, Delays, OT	$178,000
3. Design development	$166,000
4. Delay in material delivery	$125,000
5. SCLL Conditions	$66,000
6. Overtime due to Outage Durations	$65,000
7. Environmental- Exempt Modification Permit, Temporary Fence and Soil Grading	$172,000
8. Price Inflation Risk	$64,000
Total	$946,000

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Explain unique payment provisions, if applicable:

[redacted]

Material Details [redacted] – Approved 2/13/2023					
Qty	**Equipment Type**	**Description**	**Lead Time**	**Unit Cost**	**Total Cost**
[redacted]					
Total					$179,075

Identify and detail any unique O&M impacts resulting from this project:

N/A

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[3] TECHNICAL JUSTIFICATION

Project Need, Objective and Justification

[redacted]

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Project Justification

[redacted]

REDACTED

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Project Scope

[redacted]

III. Assumptions Verified from Engineering Vendor and Eversource

[redacted]

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[redacted]

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Substation Equipment

Station	Device Position / Nomenclature	Device Removals *include manufacturer*	Device Additions *include manufacturer*
[redacted]			

Background

[redacted]

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stations included stations with transformers that had at least 12 years of life remaining (based

[redacted]

[redacted]

Location	Traditional Solution	Traditional Solution Cost	Standard BESS Size	Standard BESS Cost	Specific BESS Size	Specific BESS Cost

[redacted]

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[4] ALTERNATIVES CONSIDERED

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[5] PROJECT SCHEDULE

Milestone	Scheduled Completion Date
Project Need by Date	12/31/2025
Date of IFR Approval	July 2020; March 2022 (Rev. 1)
Complete Conceptual design of Alternative(s)	05/04/2022
Initiator complete SSF form	05/25/2022
SDC Presentation Date(s)	06/08/2022
Conversion of Tx development costs, 183 to 107 (applicable to projects that require SSF approval but do not require ISO alternative selection)	N/A
Preliminary Design Complete	03/01/2023
Preliminary Design Constructability review complete	03/22/2023
Full funding estimate complete	02/03/2023
Full funding estimate review	02/10/2023
Initiator complete PAF form	02/10/2023
EPAC Funding Dates (Full)	June 2023
Detail Design Complete	06/15/2023
Final Constructability Review Complete	03/22/2023
Targeted Milestone Dates:	
· Siting Approval (if applicable)	07/28/2022
· Env. Approvals (if applicable)	06/23/2023
· Outage & Energization Plan Issued	11/01/2023
· All Material on Site	01/01/2025
· Outage Permit(s) Approved	06/01/2024
IFC Design Complete	07/11/2023
Start of Construction	01/02/2024
Project ISD	02/28/2025
Relay Settings Issued (*Required for Full Funding requests)	06/02/2023
ISO Related Milestones (for applicable projects)	N/A
· ISO Preferred Alternative Selected	N/A
· Conversion of Tx development costs, 183 to 107 · (following ISO preferred alternative selection)	N/A
· PAC Presentation	N/A
· TCA Submittal	N/A

See Attachment B for the P6 schedule.

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[6] REGULATORY APPROVALS

- Exempt Modification submission to Connecticut Siting Council (CSC)

[7] RISK AND RISK MITIGATION PLANS

Contingency:

The project cost estimate allocates $399K of continency for any risks that are not yet known and do not yet have mitigation plans.

Risk Mitigation:

Risk	Mitigation
1. Potential UG Obstructions	Will require review during construction if obstructions observed by civil contractor. (Test pits) and Use New Conduits for 1X & 2X. Risk allocation is also included.
2. Severe Weather, Delays, OT	Review scheduling and forecasts and may require extended labor and overtime. Risk allocation is also included.
3. Design development	Engage internal and vendor resources. Risk allocation is also included.
4. Delay in material delivery	Order materials as early as possible to arrive one (1) to two (2) months ahead of planned usage. Risk allocation is also included.
5. SCLL Conditions	Installing mobile transformer during construction. Risk allocation is also included.
6. Overtime due to Outage Durations	Additional outage requirements: Fiber outage, SCADA outage, Relay permissions. Risk allocation is also included.
7. Environmental	Unforeseen issues - soil contamination. Risk allocation is also included.
8. Price Inflation Risk	Keep Major equipment delivery on time. Risk allocation is also included.

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[8] REFERENCES

References
1. Distribution System Planning Guide
2. CS00392_[redacted] Transformer Replacements IFR – Rev 1; dated 03/20/2022
3. CS00392 -[redacted] Transformer Replacements SSF – Rev 1; dated 05/09/2022
4. CS00392 -[redacted] Repl - Partial Funding PAF – Rev 1; dated 05/12/2022
5. Eversource SUB013

[9] ATTACHMENTS (One-Line Diagrams, Images, etc.)

Attachment	Included in Submittal?
A. Distribution Cost Estimate	*YES*
B. P6 Schedule	*YES*
C. Constructability Review	*YES*
D. Nomenclature Diagram	*YES*

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INSTRUCTIONS:
It is the responsibility of the initiator to contact the subject matter experts in the listed area disciplines to determine if the project considerations contained in this list are applicable to their project. They should fill out the checklist and determine a transition plan for the purpose of project execution. See the PAF Guide for additional instruction.

Project Checklist - Transmission & Substation Capital Project			
Project Name: [redacted] **Transformer Replacements**		**Project Number: CS00392**	
Facility Type: ☐BPS ☐BES ☐PTF ☐PTF non-regional ☐non-PTF ☐CIP ☒Distribution ☐General Plant			
PLANNING			
Is a NX-9 required?	Yes		
Is an ISO-NE PAC presentation required?	No		
ISO-NE Presentation Date (if completed):	Enter Date		
Cost in ISO-NE Presentation ($M) (if completed):	Enter Cost ($M)		
Is a PPA required?	No		
ISO-NE Approval Date (if completed):	Enter Date		
Is a TCA Application Required?	No		
TCA Submittal Date (if submitted):	Enter Date		
Cost in TCA Submittal ($M) (if submitted):	Enter Cost ($M)		
Enter ISO-NE RSP / Asset Condition ID, if assigned:	Enter ISO-NE ID		
PLANNING/PROTECTION & CONTROLS			
Are RAS/SPS/UVLs affected?	No		
OPERATIONS			
Outage Required?	☒ Primary Equipment (Power Transfer)	☐ Secondary Equipment (P&C only)	☐ Outage Not Required
Do SCLL Conditions Exist?	Yes		
Has an outage schedule been approved?	No		
Are Operations & Maintenance procedures/training required?	No		
STANDARDS			
Does the project include standard equipment and designs?	Yes		
SUBSTATION ENGINEERING			
Does this impact Revenue Metering	No		
Is preliminary short circuit/ breaker duty analysis required?	No		
Are there any changes to the baseline audible noise?	No		
Is there an impact to the existing ground grid?	Yes		
Is a Transient Over Voltage (TOV) analysis required?	No		

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Project Checklist - Transmission & Substation Capital Project	
Project Name: [redacted] Transformer Replacement	**Project Number: CS00392**
P&C ENGINEERING	
OP-22 - Are PMUs and DDR required?	No
If BPS, is an NPCC Directory #4 presentation required?	No
Are ISO-NE OP-24 Appendix B updates necessary?	No
TRANSMISSION LINE ENGINEERING	
Are there any changes that affect the baseline EMF?	No
Are there any changes that affect the baseline EMI?	No
SITING	
Has Siting reviewed this project?	Yes
Name of Siting contact:	[redacted]
Is a Siting filing required? *(If yes, list in regulatory approvals section)*	Yes
PERMITTING	
Is there any permitting required? *(If yes, list in regulatory approvals section)*	No
PROJECT SERVICES (OUTREACH) and ROW WORK COORDINATION	
Has Project Services reviewed this project?	Yes Choose an item
Name of Project Services contact:	[redacted]
What is the level of outreach expected?	Low
Is any part of this project in an Environmental Justice Community?	No
Has ROW Coordination reviewed this project?	No
Is this project coordinating with other existing scheduled work?	No
INITIATOR	
Has a field constructability review been completed?	Yes
INVESTMENT RECOVERY	
Does the project require development of an Investment Recovery plan?	No
COST ESTIMATING	
What team/firm prepared the cost estimate?	Estimate was prepared by the Eversource Estimating Team
Name of the person who prepared the estimate:	[redacted]
Was the estimate reviewed by Eversource Estimating?	Yes - Full Review

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ESTIMATE SUMMARY

Project Title: [redacted] 2X Transformer Replacement - Distribution Assets
Project Mgr: [redacted]
Project Number: CS00392
WO & Task #: CS003921
Estimate revision #: 02
Estimate Type - Station work

Estimate #: O-23-174
Date of Estimate: 05/25/2023
Estimate done by: [redacted]
In Service date: [redacted]

ESTIMATE SUMMARY

Estimate Type: Planning

WBS	Description	TOTAL	% of Directs	% of Total	Priors	2023	2024	2025	2026	2027
1	ROW / Easements / Land purchases									
2	Environmental Approvals / Permits									
3	Outreach	$16,300	0.2%	0.1%	$500	$2,700	$12,000	$1,100		
4	Siting Approvals / Permits	$167,800	1.8%	1.3%	$1,200	$28,800	$125,900	$11,900		
5	Engineering / Design	$549,000	5.9%	4.3%	$35,900	$184,900	$235,400	$92,800		
6	Materials (Eversource purchased)	$3,550,400	38.1%	28.1%		$693,300	$2,854,900	$2,200		
7	Construction (incl materials by contractors)	$2,426,600	26.0%	19.2%	$3,900	$491,000	$1,687,200	$244,500		
8	Testing / Commissioning	$728,100	7.8%	5.8%			$502,800	$225,300		
9	PMT Project Mgmt Team	$294,000	3.2%	2.3%	$73,500	$73,200	$93,300	$54,000		
10	Removals	$643,600	6.9%	5.1%			$643,600			
11	Other									
12	Risks	$946,000	10.1%	7.5%		$253,000	$542,000	$151,000		
105										
	Project Directs Total w/Risks	**$9,321,800**	100.0%	73.8%	**$115,000**	**$1,726,900**	**$6,697,100**	**$782,800**		
13	Indirects/Overhead	$2,323,700		18.4%	$100,600	$382,600	$1,554,000	$286,500		
14	AFUDC	$581,300		4.6%	$13,200	$83,400	$421,500	$63,200		
135										
	Project Total - Baseline Budget	**$12,226,800**		96.8%	**$228,800**	**$2,192,900**	**$8,672,600**	**$1,132,500**		
15	Contingency	$405,200		3.2%		$74,100	$301,200	$29,900		
	Project Total - Funding Approval Level	**$12,632,000**		100.0%	**$228,800**	**$2,267,000**	**$8,973,800**	**$1,162,400**		
16	Reimbursables/Customer Contribution									
200										
	Project Total (less reimbursables)	**$12,632,000**			**$228,800**	**$2,267,000**	**$8,373,800**	**$1,162,400**		
	Cost per key qty (if appl)	6,316,000 $'s / EA Replace two 115kV/13.8kV, 62.5 MVA substation transformers								
	Amount of Escalation included above	$378,100					$300,700	$77,400		
6	Total materials - Eversource	$3,550,400				$693,300	$2,854,900	$2,200		
	Total materials - Contractor	$129,900				$25,400	$104,500			
	Total materials	$3,680,300				$718,700	$2,959,400	$2,200		

NOTE: Risk / Contingency is 12% of Project Total Costs (incl excalIndirects/AFUDC but excl reimb.)

Estimate Range	-25%	25%
	$9,474,000	**$15,790,000**

COMMENTS

Project Scope: [redacted] Factor (total $/Eversource Mat'l $'s)

[redacted]

RISKS

Potential UG Obstructions	$ 110,000
Severe Weather, Delays, OT	$ 178,000
Design development	$ 166,000
Delay in material delivery	$ 125,000
SCLL Conditions	$ 66,000
Overtime due to Outage Durations	$ 65,000
Environmental	$ 172,000
Price Inflation Risk	$ 64,000

All Estimate Summary for PIN Calc (escalation separate)

Estimate #: O-23-174
Date of Estimate: 05/25/2023

Project Number: CS00392
WO & Task #: CS003921

	TOTAL w/ escal broken out
ROW / Easements / Land purchase	$ -
Environmental Approvals / Permits	$ -
Outreach	$ 15,700
Siting Approvals / Permits	$ 160,800
Engineering / Design	$ 530,000
Materials (Eversource purchased)	$ 3,593,585
Construction (incl materials by co	$ 2,200,815
Testing / Commissioning	$ 685,100
PMT Project Mgmt Team	$ 285,000
Removals	$ 624,900
Other	$ -
Risks	$ 946,000
	$9,041,900
Indirects/Overhead	$ 2,225,500
AFUDC	$ 581,300
	$ -
	$11,848,700
	$ -
Contingency	$ 405,200
	$12,253,900
	$ -
	$ -
	$12,253,900
	$ 378,100
Excel total	**$12,632,000**
Check total	

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UNESCALATED LINE ITEM DOLLARS

Project Number CS00382
Date of Estimate 05/25/2023
Estimate revision # 02

