EVERSOURCE

Operations Program Release Form

Approved on April 13, 2022 EPAC

Link to Meeting Minutes

Project Title: N [redacted] OCB Replacement and Bus Rehab Program Release	**Project Number: CS00417**
Date Prepared: 04/04/2022	**Company: Eversource CT**
Organization: Asset Management	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - General**
Managing Organization: Transmission / Major Projects	**Schedule ID#: CS004171**
Project Manager: [redacted]	**Project Type: Program**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Estimated in service date: 12/05/2022	**Program Level Title: CT OCB Replacement and Bus Rehabilitation Program**
Eng./Constr. Resources Budgeted? Yes	**Program Level Project Number: CS00411**
Total Capital Request: $3.167M	**Facility Type (check all that apply):** ☐ **PTF** ☐ **non-PTF** ☒ **Distribution** ☐ **N/A (General**

[1] Executive Summary

This Program Release is requesting full funding of $3.167M to replace [redacted]

This Program Release is requesting dollar authorization in accordance with the program level criteria specified in the CT OCB Replacement Program PAF CS00411 (Attachment E) and this document for this specific location. The Program Level PAF had $450K of initial funding approved in PowerPlan on May 27, 2021. The scope for this Program Release is defined in the Program Level PAF and in this document with modifications necessary that address this location. Modifications from the Program Level PAF with respect to the reference unified program includes the addition of two (2) GODs and the replacement of two (2) SSTs.

This work for [redacted] started under the CT OCB Replacement Program work order CS004117. Upon approval of this release the actuals spend to date (as of March 30, 2022) of $22K will be journaled to this project. The spend to date was used to complete preliminary engineering and develop the scope of work, a constructability review and the planning grade

estimate. The target in service date (ISD) is December 5, 2022. See Attachment D for the Nomenclature Diagram.

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[2] PROJECT COSTS SUMMARY

Unitized Release Cost

Note: Dollar values are in thousands

Line item Category	Unitized Program Level PAF Cost	Release Cost	Delta
1. ROW / Easements / Land Acquisition	$0	$0	$0
2. Environmental Approvals / Permits	$0	$0	$0
3. Outreach	$1	$2	$1
4. Siting Approvals / Permits	$0	$0	$0
5. Engineering / Design	$15	$128	$113
6. Materials (Eversource purchased)	$179	$207	$29
7. Construction (incl matl's by contractors)	$315	$897	$582
8. Testing / Commissioning	$173	$263	$90
9. Project Mgmt Team	$6	$12	$6
10. Removals	$19	$38	$19
11. Other	$0	$0	$0
12. Risks	$106	$343	$237
SUBTOTAL DIRECTS W/ RISKS	**$812**	**$1,890**	**$1078**
13. Indirects/Overhead	$390	$1,110	$721
14. AFUDC	$73	$89	$15
PROJECT TOTAL – BASELINE BUDGET	**$1,275**	**$3,090**	**$1815**
15. Contingency	$66	$77	$11
TOTAL CAPITAL REQUEST	**$1,341**	**$3,167**	**$1826**
16. Reimbursables/Customer Contribution	$0	$0	$0
PROJECT TOTAL (LESS REIMBURSABLES)	**$1,341**	**$3,167**	**$1826**
O&M	$0	$0	$0
Total Request	**$1,341**	**$3,167**	**$1826**

Note: Unitized costs have been doubled to account for the two (2) OCBs being replaced at [redacted].

Justification for Modification

1. **ROW / Easements / Land Acquisition: $0K –** No changes with respect to the program.
2. **Environmental Approvals / Permits: $0K –** No changes with respect to the program.
3. **Outreach: $1K –** Minor change with respect to the program due to outreach estimate calculation based on additional scope.
4. **Siting Approvals / Permits: $0K –** No changes with respect to the program.
5. **Engineering / Design: $113K –** Engineering costs increased due to more design work for this release. An addition of two (2) group operated disconnect switches (GODs) with new foundations and replacement of two (2) padmount SSTs are included in this release compared with the program.
6. **Materials (by Eversource): $29K –** Costs increased due to more materials purchased for this release. An addition of two (2) GODs with new foundations and two (2) padmount SSTs are included in this release and there are no reactors with associated switches in this release compared with the program. Although these costs are higher than the program unitized costs, the cost of the additional GODs and SSTs are partially offset by the reduced program unitized equipment costs. Normally included in the program costs for this release would be the replacement of reactors and associated switches and the replacement of two (2) OCB associated GOP switches instead of one OCB associated switch being replaced in this release.
7. **Construction (including materials supplied by contractors): $582K–** Costs increased due to more construction work for this release. An addition of two (2) GODs with new foundations and replacement of two (2) padmount SSTs are included in this release compared with the program.
8. **Testing / Commissioning: $90K –** Costs increased in this release compared with the program. Commissioning of added SSTs require additional testing.
9. **Project Management Team: $6K –** Costs increased due to additional work in assessing scope compared with the program.
10. **Removals: $19K -** Cost increased due to more removal work for this release. The existing two (2) padmount SSTs and AC panelboards' removals are included in this release compared with the program.
11. **Other: $0K –** No changes with respect to the program.
12. **Risk: $237K –** Cost increased due to additional risks for this release. An addition of two (2) manual switches with new foundations, two (2) padmount SSTs and mobile transformer are included in this release compared with the program resulting in increased risks.
13. **Indirects/Overhead: $721K –** Indirect charges are calculated using the direct costs which have increased for this release.
14. **AFUDC: $17K –** Although the project duration is similar to that of the program, AFUDC charges are calculated using the direct costs which have increased for this release.
15. **Contingency: $11K –** Contingency increased for added scope with respect to the program.
16. **Reimbursables/Customer Contribution: $0K –** No changes with respect to the program.
17. **O&M: $0K –** No changes with respect to the program.

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Note: Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2022 to Go	2023	2024	Total
1. ROW / Easements / Land Acquisition						
2. Environmental Approvals / Permits						
3. Outreach			$2	$0		$3
4. Siting Approvals / Permits						
5. Engineering / Design		$6	$117	$4		$128
6. Materials (Eversource purchased)			$207	$0		$207
7. Construction		$1	$879	$17		$897
8. Testing / Commissioning			$263			$263
9. Project Mgmt Team		$1	$10	$1		$12
10. Removals			$38			$38
11. Other						
12. Risks			$343			$343
SUBTOTAL DIRECTS W/ RISKS	**$450**	**$9**	**$1,859**	**$22**		**$1,890**
13. Indirects/Overhead		$13	$1,079	$18		$1,110
14. AFUDC		$0	$89			$89
PROJECT TOTAL – BASELINE BUDGET	**$450**	**$22**	**$3,027**	**$41**		**$3,090**
15. Contingency			$76	$1		$77
TOTAL CAPITAL REQUEST	**$450**	**$22**	**$3,103**	**$41**		**$3,167**
16. Reimbursables/Customer Contribution						
PROJECT TOTAL (LESS REIMBURSABLES)	**$450**	**$22**	**$3,103**	**$41**		**$3,167**
O&M						
TOTAL REQUEST	**$450**	**$22**	**$3,103**	**$41**		**$3,167**

Detail other costs, project risk items and their allocations:

Risk	Allocation
1. Potential UG Obstructions	$16K
2. Severe Weather, Delays, OT	$36K
3. Design Development	$60K
4. Delays / outages related to breaker energization plans	$32K
5. Control Breaker Cables Failures	$24K
6. Foundation's replacement required for existing CBs and existing SSTs.	$25K
7. Mobile for SCLL condition may be required	$100K
8. Soil sampling for new equipment.	$25K
Total	$343K

Explain unique payment provisions, if applicable: N/A

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

[3] PROJECT SCOPE

The project release scope includes the following:

[redacted]

- Provide and issue civil, electrical, and P&C engineering design and construction documents.
- Test and commission the new equipment.
- Properly dispose of removed equipment.

Table 1 Substation Equipment

Equip Type	Device Position /	Device Removals *include manufacturer*	Device Additions *include manufacturer*
[redacted]			



A constructability review was performed on 02/17/2021 (see Attachment C).

[4] ALTERNATIVES CONSIDERED

Alternative 1. [redacted] The estimate for this alternative would be approximately $1.4M in accordance with the program unitized cost estimates.

Pros: [redacted].

Cons: [redacted]

Alternative 2. (Preferred Option) [redacted] The preliminary estimate for this alternative is $3.115M, see attachment A.

Pros: [redacted]

Cons: [redacted]

[5] PROJECT SCHEDULE

Milestone	Scheduled Completion Date
1. Project Need by Date (ISD)	2022-12-05
2. Date of Program IFR Approval	2021-05-27
3. Complete Conceptual design of Alternative(s)	2021-03-27
4. Initiator complete SSF form	N/A
5. SDC Presentation Date(s)	N/A
6. Conversion of Tx development costs, 183 to 107 (applicable to projects that require SSF approval but do not require ISO alternative selection)	N/A
7. Preliminary Design - Complete	2022-03-28
8. Preliminary Design Constructability review - Complete	2021-03-24
9. Full funding estimate - Complete	2022-02-13
10. Full funding estimate review - Complete	2022-02-10
11. Initiator complete PAF form	2022-04-04
12. EPAC Funding Dates (Full)	2022-04-13
13. Detail Design Complete	2022-04-28
14. Final Constructability Review	2021-03-24
15. Targeted Milestone Dates:	
· Siting Approval (if applicable)	N/A
· Env. Approvals (if applicable)	N/A
· Outage & Energization Plan Issued	2022-02-14
· All Material on Site	2022-10-01
· Outage Permit(s) Approved	2022-10-01
16. IFC Design Complete	2022-06-08
17. Start of Construction	2022-10-31
18. Project ISD	2022-12-05
19. Relay Settings Issued (ES Engineering Review P&C IFC)	N/A
20: ISO Related Milestones (for applicable projects)	
· 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

The P6 schedule is included as Attachment B.

[6] Regulatory Approvals

None. There are no changes from the Program Level PAF.

[7] Risk and Risk Mitigation Plans

Contingency: Contingency of $77K is included in this release for any unanticipated unknowns.

Risk Mitigation:

Risk	Mitigation
1. Potential UG Obstructions	Be flexible with construction and have alterative paths and solutions to conduit installations. Risk allocation is included to address this risk.
2. Severe Weather, Delays, OT	Outage cancelled due to unplanned events on the system resulting in schedule delays and additional potential labor costs to remobilize is a risk. This will also be mitigated by: • Being flexible and reviewing with contractors to determine availability. • Building float time into the construction schedule. • Review and confirm mobile transformer scheduled as required. Risk allocation is included to address this risk.
3. Design Development	Weekly project meeting meetings to discuss project status and schedule to ensure we are all on track. Risk allocation is included to address this risk.
4. Delays / outages related to breaker energization plans	Rescheduling and OT as required. Risk allocation is included to address this risk
5. Control Breaker Cables Failures	Review early and install new control breaker cables as required. Risk allocation is included to address this risk.
6. Foundation replacements for existing CBs and existing SSTs.	Added risk dollars to provide new foundations if study results indicate new foundations are required.
7. Mobile for SCLL condition may be required	Added risk dollars to provide mobile if required. Design and construct in manner which will reduce outage times.
8. Soil sampling for new equipment.	Added risk dollars for sampling soil around new foundations if required.

[8] REFERENCES

References
1.
2.
3.
4.
5.

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

Attachment	Included in Submittal?
A. Cost Estimate	YES
B. P6 Schedule	YES
C. Constructability Review	YES
D. System and Station One-Lines	YES
E. CS00411 - CT OCB Replacement Program PAF	YES

Project Checklist - Transmission & Substation Capital Project	
Project Name: [redacted] **OCB Replacement and Bus Rehab Program Release**	**Project Number: CS00417**
Facility Type: ☐BPS ☐BES ☐PTF ☐PTF non-regional ☐non-PTF ☐CIP ☒Distribution ☐General Plant	

PLANNING	
Is a NX-9 required?	No
Is an ISO-NE PAC presentation required?	No
ISO-NE Presentation Date (if completed):	N/A
Cost in ISO-NE Presentation ($M) (if completed):	N/A
Is a PPA required?	No
ISO-NE Approval Date (if completed):	N/A
Is a TCA Application Required?	No
TCA Submittal Date (if submitted):	N/A
Cost in TCA Submittal ($M) (if submitted):	N/A
Enter ISO-NE RSP / Asset Condition ID, if assigned:	N/A

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?	Yes		
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

Project Checklist - Transmission & Substation Capital Project	
Project Name: [redacted] OCB Replacement and Bus Rehab Program Release	**Project Number: CS00417**

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	
Is a Siting filing required? *(If yes, list in regulatory approvals section)*	No
PERMITTING	
Is there any permitting required? *(If yes, list in regulatory approvals section)*	No
PROJECT SERVICES (OUTREACH) and ROW WORK COORDINATION	
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 Eversource Engineering
Name of the person who prepared the estimate:	[redacted]
Was the estimate reviewed by Eversource Estimating?	Yes - Partial Review

ESTIMATE SUMMARY

Project Title: [redacted] OCB Replacement Program Release
Project Manager: [redacted]
Project Number: CS00417
WO & Task #: CS004171 / CS004117
Estimate revision #: 00
Estimate Type - Station work

Estimate #: C-22-54
Date of Estimate: 03/17/2022
Estimate done by: [redacted]
In Service date (ISD): 12/31/2022

Template Revision # 01.70a

All Estimate Summary for PP4 Calc (escalation separate)

Estimate #: C-22-54
Date of Estimate: 03/17/2022

Project Number: CS00417
WO & Task #: CS004171 / CS004117

ESTIMATE SUMMARY

Estimate Type: Planning

WBS	Description	TOTAL	% of Directs	% of Total	Priors	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1	ROW / Easements / Land purchases	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	Environmental Approvals / Permits	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	Outreach	$3 000	0.2%	0.1%	$0	$3 000	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	Siting Approvals / Permits	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	Engineering / Design	$127,700	6.8%	4.0%	$6,500	$116,800	$4,400	$0	$0	$0	$0	$0	$0	$0	$0
6	Materials (Eversource purchased)	$207 300	11.0%	6.5%	$0	$207 100	$200	$0	$0	$0	$0	$0	$0	$0	$0
7	Construction (Incl matl's by contractors)	$896,800	47.4%	28.3%	$800	$879,100	$16,900	$0	$0	$0	$0	$0	$0	$0	$0
8	Testing / Commissioning	$262,800	13.9%	8.3%	$0	$262,800	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	PMT Project Mgmt Team	$11,600	0.6%	0.4%	$1,300	$9,700	$600	$0	$0	$0	$0	$0	$0	$0	$0
10	Removals	$38 000	2.0%	1.2%	$0	$38 000	$0	$0	$0	$0	$0	$0	$0	$0	$0
11	Other	$0	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
12	Risks	$343,000	18.1%	10.8%	$0	$343,000	$0	$0	$0	$0	$0	$0	$0	$0	$0
125	0	$0		0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Project Directs Total w/Risks	**$1,850,200**	100.0%	59.7%	**$8,600**	**$1,859,500**	**$22,100**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
13	Indirects/Overhead	$1 110 300	35.1%		$13 100	$1 078 800	$18 400	$0	$0	$0	$0	$0	$0	$0	$0
14	AFUDC	$89,300	2.8%		$400	$88,900	$0	$0	$0	$0	$0	$0	$0	$0	$0
135	0	$0	0.0%		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Project Total - Baseline Budget	**$3,089,800**	97.6%		**$22,100**	**$3,027,200**	**$40,500**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
15	Contingency	$77 100	2.4%		0	$76 200	$900	$0	$0	$0	$0	$0	$0	$0	$0
	Project Total - Funding Approval Level	**$3,166,900**	100.0%		**$22,100**	**$3,103,400**	**$41,400**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
16	Reimbursables/Customer Contribution	$0			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Project Total (less reimbursables)	**$3,166,900**			**$22,100**	**$3,103,400**	**$41,400**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
	Cost per key qty (if appl)	-	$'s / EA												
	Amount of Escalation included above	$1,200			$0	$0	$1,200	$0	$0	$0	$0	$0	$0	$0	$0
6	Total materials - Eversource	$207 300			$0	$207 100	$200	$0	$0	$0	$0	$0	$0	$0	$0
	Total materials - Contractor	$0			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total materials	$207 300			$0	$207 100	$200	$0	$0	$0	$0	$0	$0	$0	$0

NOTE: Risk / Contingency is 15 3% of Project Total Costs (Incl escal/Indirects/AFUDC but excl reimb.)

Estimate Range	**-25%**	**25%**
	$2,375,000	**$3,959,000**

TOTAL w/ escal broken out		
ROW / Easements / Land purchas	$	-
Environmental Approvals / Permi	$	-
Outreach	$	3 100
Siting Approvals / Permits	$	-
Engineering / Design	$	127,500
Materials (Eversource purchased	$	207,300
Construction (Incl matl's by cont	$	896,400
Testing / Commissioning	$	262,800
PMT Project Mgmt Team	$	11,500
Removals	$	38 000
Other	$	-
Risks	$	343,000
		$1,889,600
Indirects/Overhead	$	1 109 800
AFUDC	$	89,300
	$	-
		$3,088,700
	$	-
Contingency	$	77 100
		$3,165,800
	$	-
	$	-
		$3,165,800
	$	1,200
Excel total		**$3.167.000**
Check total		5100

COMMENTS

[redacted]

Assumptions/Clarifications:
Indirect rates based on: 11 - OT - Station work

- Engineering to be outsourced with in-house review. Construction and testing to be out-sourced with external resources. PM Services to be in house.
- This estimate was developed with the use of existing breaker control conduits with no digging in existing soil.
- This estimate was developed utilizing the existing circuit breaker foundations, new foundations for new 2 additional are included in this estimate.
- Material estimates based on previous work, and vendor quotes.
- All new equipment will be installed within the confines of the existing fenced yard.
- No additional allowances have been added for aggressive outage recall times.
- Estimate includes risk for all new control cables to be installed in the event of failure during megger testing. This estimate includes addition risk if the switches due to long lead times are not here in time to take advantage of the OCB outages.
- Mobile transformer may be required for SCLL condition mitigation, risk has been added.

RISKS

Potential UG Obstructions	$	16,000
Severe Weather. Delays. OT	$	36,000
Design Development	$	60,000
Delays / outages related to breaker energization plans	$	32,000
Control Breaker Cables Failures.	$	24,000
Existing foundation(s) may need to be replaced for CBs or existing	$	25,000
Mobile For SCLL may be required	$	100,000
Soil sampling for new equipment.	$	50,000

CSTXX-CONSTRUCTION	R		Prior Mhrs	Prior DOLLARS	22 DOLLARS	2023 Mhrs	2023 DOLLARS		TOTAL DOLLARS
Electrical Construction	LT		0	$552	$0	0	$0		$552
General Construction	LT		0	$0	$0		$0		$0
SCADA / Automation	LT		0	$59	$0	0	$0		$59
Telecom - Field	LT		0	$0	$7,904	0	$0		$7,904
Construction Reps (Internal)	LT		0	$20	$42,000	0	$0		$42,020
Support Switch/Tag	LT		0	$41	$19,571	0	$0		$19,612
Other (specify)	LT		0	$0.00	$0	0	$0		$0
Other (specify)	LT		0	$0	$0	0	$0		$0
Other (specify)	LT		0	$0	$0	0	$0		$0
LT Total			0	$700.67	$69,475	0	$0		$70,176
Employee Expenses	AE		0	$41	$3,474		$0		$3,515
Construction Purchased Material	AM		0	$0	$8,062		$185		$8,227
Outside Construction Vendor	AQ		0	$0	$806,173	108	$16,453		$822,626
Sales tax on Constr. Vendor			0	$0	$0		$0		$0
Vehicles (now in Indirects section)	AV		0	$70	$0		$0		$70
Inspection services (Outside Vendor)	AQ		0	$0	$0	0	$0		$0
Construction Reg (Outside vendor)	AQ		0	$0	$0	0	$0		$0
Rents and Leases	BR		0	$0	$0		$0		$0
CSTXX Subtotal				$811	$887,184		$16,618		$904,613
Escalation			0	$0					$0
			0	$0	$0		$0		$0
CSTXX Total			0	$811	$887,184	108	$16,618		$904,613
ENRXX-TG ENGINEERING/DESIGN									$0
Project Services/Drafting	LT		0	$751	$1,839	4	$194		$2,784
T- Line Engineering/Design	LT		0	$0	$0	0	$0		$0
D- Street Engineering/Design	LT		0	$0	$0		$0		$0
Civil Engineering/Design	LT		0	$1,150	$3,098	4	$194		$4,442
Substation (T) Engineering/Design	LT		0	$103	$0		$0		$103
Substation (D) Engineering/Design	LT		0	$2,872	$3,780	4	$210		$6,862
Protection & Controls Engineering	LT		0	$594	$3,402	8	$454		$4,452
Survey Engineering	LT		0	$0	$0	0	$0		$0
SCADA / Automation Engineering	LT		0	$0	$0	0	$0		$0
Telecom Engineering	LT		0	$53	$0	0	$0		$53
Other - specify	LT		0	$0	$0	0	$0		$0
Other - specify	LT		0	$0	$0	0	$0		$0
LT Total			0	$5,516	$12,119	20	$1,052		$18,787
Employee Expenses	AE		0	$65	$606		$53		$724
Contractor Engineering - T-Lines	AQ		0	$0	$0		$0		$0
Contractor Engineering - D-Street	AQ		0	$0	$0		$0		$0
Contractor Engineering - T -Station	AQ		0	$0	$0	0	$0		$0
Contractor Engineering - D-Station	AQ		0	$790	$88,234	8	$1,256		$90,280
Contractor Engineering - P&C	AQ		0	$0	$15,800	12	$1,896		$17,696
Contractor Engineering - Survey	AQ		0	$0	$0	0	$0		$0
Contractor Engineering - SCADA / Automation	AQ		0	$0	$0	0	$0		$0
Contractor Engineering - Telecom	AQ		0	$0	$0	0	$0		$0
Contractor Engineering - Specify	AQ		0	$0	$0	0	$0		$0
Contractor Engineering - Specify	AQ		0	$0	$0	0	$0		$0
Contractor Engineering - Specify	AQ		0	$0	$0	0	$0		$0
Vehicles (now in Indirects section)	AV		0	$0	$0		$0		$0
ENRXX Subtotal				$6,471	$116,759		$4,257		$127,487
Escalation			0	$0					$0
		0%	0	$0	$0		$0		$0
ENRXX Total			0	$6,471	$116,759	40	$4,257		$127,487
LNDXX-TG LAND									$0
Real Estate	LT	$ 56.70	0	$0	$0	0	$0		$0
Employee Expenses	AE	5%	0	$0	$0		$0		$0
Purchase Land	AM		0	$0	$0		$0		$0
Vehicles (now in Indirects section)	AV	0.0%	0	$0	$0		$0		$0
Fees and Payments	BF		0	$0					$0
LNDXX Subtotal				$0	$0		$0		$0
Escalation			0	$0					$0
		0%	0	$0	$0		$0		$0
LNDXX Total			0	$0	$0	0	$0		$0
MATXX-TG MATERIAL									$0
Eversource	AM		0		$191,539		$0		$191,539
Outside Services	AM		0		$0		$0		$0
	AM		0	$0					$0
Freight		0%	0	$0					$0
Sales Tax Eversource/outside services	3.9%	3.9%	0	$0	$7,500		$0		$7,500
Other		0%	0	$0	$0		$0		$0
MATXX Subtotal				$0	$199,039		$0		$199,039
Escalation			0	$0					$0
		0%	0	$0	$0		$0		$0
MATXX Total			0	$0	$199,039		$0		$199,039
PSMXX-PROJECT MANAGER & SUPPORT									$0
Project Management (PM)	LT		0	$335	$3,056	4	$218		$3,611
Project Planning/Cost (IP)	LT		0	$32	$1,186	2	$99		$1,317
Contracts/Purchasing (C/P)	LT		0	$36	$1,179	0	$0		$1,215
System Planning	LT		0	$0	$1,706	2	$142		$1,848
Environmental	LT		0	$0	$0	0	$0		$0
SCS - Notification	LT		0	$0	$150	0	$2		$152
Legal	LT		0	$0	$0		$0		$0
Estimating	LT		0	$43	$474		$0		$517
Siting - None	LT		0	$0	$0	0	$0		$0
Asset Management	LT		0	$0	$1,598	2	$113		$1,701
Other -	LT		0	$0	$0		$0		$0
Other -	LT		0	$0	$0		$0		$0
Other -	LT		0		$0		$0		$0
Other -	LT		0		$0		$0		$0
LT Total			0	$446	$9,341	10	$574		$10,361
Employee Expenses	AE		0	$13	$467	0	$29		$509
Project Support Vendor - PM	AQ		0	$790	$0		$0		$790
Project Support Vendor - IP	AQ		0		$0	0	$0		$0
Project Support Vendor - C/P	AQ		0		$0	0	$0		$0
Project Support Vendor - System Planning	AQ		0		$0		$0		$0
Project Support Vendor - Environmental	AQ		0		$0	0	$0		$0
Project Support Vendor - SCS - Notification	AQ		0		$2,900	0	$40		$2,900
Project Support Vendor - Legal	AQ		0		$0	0	$0		$0
Project Support Vendor - Estimating	AQ		0		$0	0	$0		$0
Project Support Vendor - Siting - None	AQ		0		$0	0	$0		$0
Project Support Vendor - Asset Management	AQ		0		$0	0	$0		$0
Project Support Vendor - Other	AQ		0		$0	0	$0		$0
Project Support Vendor - Other	AQ		0		$0	0	$0		$0
Project Support Vendor - Other	AQ		0		$0	0	$0		$0
Project Support Vendor - Other	AQ		0		$0	0	$0		$0
Vehicles (now in Indirects section)	AV		0	$8	$0	0	$0		$8
Property or OWIP tax large proj. allowance	BR		0		$0	0	$0		$0
Builder All risk insurance excluding deductibles(if project is over $50m)	BR		0		$0	0	$0		$0
Fees and Payments - Environental	BF		0		$0	0	$0		$0
Fees and Payments - Siting	BF		0	$0	$0	0	$0		$0
Fees and Payments - Other	BF		0	$0	$0	0	$0		$0
PSMXX Subtotal				$1,256.59	$12,668		$643		$14,567
Escalation			0	$0					$0
			0	$0	$0		$0		$0
PSMXX Total				$1,256	$12,668	10	$643		$14,567
REMXX-TG REMOVAL									$0
Engineering/Design	LT		0	$0	$0	0	$0		$0
Internal Construction	LT		0	$0	$16,584	0	$0		$16,584
LT Total			0	$0	$16,584		$0		$16,584
Employee Expenses	AE		0	$0	$2,468		$0		$2,468
Outside Services	AQ		0	$0	$0		$0		$0
Contractor Labor	AQ		0	$0	$19,980	0	$0		$19,980
Vehicles (now in Indirects section)	AV		0	$0	$0		$0		$0
Rents and Leases	BR		0	$0					$0
REMXX Subtotal				$0	$39,032		$0		$39,032
Escalation			0	$0					$0
			0	$0	$0		$0		$0
REMXX Total				$0	$39,032	0	$0		$39,032
TSTXX-TG TEST									$0
Test / Field Engr. Labor (In House)	LT			$0	$0	0	$0		$0
Lead Commissioning Engr. (LCE) (Internal)	LT			$0	$0	0	$0		$0
Employee Expense	AE			$0	$0		$0		$0
Test / Field Engr. Labor (contractor)	AQ			$0	$166,500	0	$0		$166,500
Lead Commissioning Engr. (LCE) (contractor)	AQ			$0	$96,300	0	$0		$96,300
Vehicles (now in Indirects section)	AV		0	$0	$0		$0		$0
TSTXX Subtotal				$0	$262,800		$0		$262,800
Escalation			0	$0					$0
		0%	0	$0	$0		$0		$0
TSTXX Total				$0	$262,800	0	$0		$262,800
SUBTOTAL PROJECT DIRECT COST			-	$8,538	$1,816,482	188	$21,918		$1,846,938
								0	$0
Risk									
Risk					$343,000		$0	0	$343,000
					0 $ -	0 $ -		0	$0
					0 $ -	0 $ -		0	$0
Risk Total				$0	$343,000		$0		$343,000
TOTAL PROJECT DIRECT COST (w risk)			-	$8,538	$1,859,482	188	$21,918		$1,889,938
INDIRECTS									
Non-Productive Time Allocation (ZNP)	15.1%		0	$1,212	$16,182		$245		$17,639
Payroll Benefits Allocation (ZPB) Incl NPT	44.0%		0	$0	$43,565		$0		$43,565
Gen SVC CO Overhead (ZGS) Incl NPT	80.0%		0	$5,563	$19,752		$1,497		$26,812
E&S Allocations (ZES,ZES,ZES)	60.0%		0	$5,271	$629,107		$13,806		$648,186
AS&E Allocations (ZAS)	1.3%		0	$234	$30,314		$463		$31,011
Stores Expense Allocation (ZST)	8.0%		0	$0	$15,323		$0		$15,323
Lobby Stock	0.0%		0	$0	$0		$0		$0
MDEC (ZMI)	6.0%		0	$745	$94,467		$1,356		$96,568
Vehicles (ZVE)	28.0%		0	$56	$30,105		$405		$30,646
	0.0%		0	$0		0.00%	$0		$0
Indirects Subtotal				$13,112	$1,079,015		$17,854	0	$1,109,781
TOTAL PROJECT COST - Direct & Indirect (excl AFUDC)				$21,650	$2,938,297		$39,373		$2,999,719
AFUDC									$0
									$0
AFUDC (ZX)				$443	6.50% $88,853	6.50% $0		1	$89,296
In Service Dollars					$0	$0		0	$0
Cumulative ISS					-	-		0	$0
								0	$0
AFUDC Subtotal				$443	$88,853	$0			$89,296
TOTAL PROJECT COST - Baseline Budget				$22,093	$3,027,150	$39,373			$3,088,615
Contingency									$0
Contingency				$0	$76,181	$925			$77,107
Other				$ -	$ -	$ -			$0
									$0
Contingency SubTotal				$0	$76,181	$925			$77,107
TOTAL PROJECT COST - Approved Funding				$22,093	$3,103,331	$40,297			$3,165,722
Reimbursables / Customer Contribution									$0
Reimbursable / Customer Contribution (enter as negative)				$ -	$ -	$ -			$0
	0.0%			$0	$0	$0		0	$0

Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
CS004171 [redacted] OCB Replacement Program Release (2) (RLC)			03-Nov-20 A	507	14-Feb-23		
CS004171.01 INITIALIZATION AND SCOPE DEVELOPEMENT			08-Feb-21 A	444	14-Nov-22		
	START	SCHEDULE START MILESTONE	08-Feb-21 A	0			
CS004171.01.09 Project Initiation			15-Feb-21 A	318	12-May-22		
CS004171.01.09.00 Engineering Scope Development			05-Mar-21 A	3	05-Mar-21 A		
ES-CONCPT	PE1000	N/R Develop Civil Substation Conceptual Engineering Scope Design in Accordance with Deliverables Checklist	05-Mar-21 A	3	05-Mar-21 A		
ES-CONCPT	PE1400	N/R Develop P&C Conceptual Engineering Scope Design in Accordance with Deliverables Checklist	05-Mar-21 A	3	05-Mar-21 A		
ES-CONCPT	PE1100	N/R Develop Electrical Substation Conceptual Engineering Scope Design in Accordance with Deliverables Checklist	05-Mar-21 A	3	05-Mar-21 A		
CS004171.01.09.01 Civil Engineering Preliminary Design			03-Jan-22 A	26	28-Mar-22 A		
V-PRELIM	DE2010	Vendor Engineer Develop Civil Substation Preliminary Design	03-Jan-22 A	14	21-Jan-22 A		
ES-PRELIM	DE2020	ES Engineering Review Civil Substation Preliminary Design	21-Jan-22 A	10	28-Mar-22 A		
CS004171.01.09.02 Electrical Engineering Preliminary Design			03-Jan-22 A	25	28-Mar-22 A		
V-PRELIM	DE2030	Vendor Engineer Develop Electrical Substation Preliminary Design	03-Jan-22 A	14	21-Jan-22 A		
ES-PRELIM	DE2040	ES Engineering Review Electrical Substation Preliminary Design	21-Jan-22 A	10	28-Mar-22 A		
CS004171.01.09.06 P&C Engineering Preliminary Design			03-Jan-22 A	25	28-Mar-22 A		
V-PRELIM	DE2090	Vendor Engineer Develop P&C Preliminary Design	03-Jan-22 A	14	21-Jan-22 A	RLC Engineering	
ES-PRELIM	DE2100	ES Engineering Review P&C Preliminary Design	21-Jan-22 A	10	28-Mar-22 A		
CS004171.01.09.2 EPAC Partial Funding			01-Mar-21 A	66	07-Apr-21 A		
	CE1521	Schedule Preliminary Constructability Walk Down	01-Mar-21 A	5	05-Mar-21 A		
	CE1530	N/R - Review Siting & Permitting (If Required)	01-Mar-21 A	5	05-Mar-21 A		
	CE1540	Preliminary ISD Date Locked Down	01-Mar-21 A	5	05-Mar-21 A		
	CE1522	Conduct Preliminary Constructability Walk Down	05-Mar-21 A	5	11-Mar-21 A		
Construct	CE1524	Release Constructability Form Review Complete	22-Mar-21 A	5	24-Mar-21 A		
EST-PART	CE1550	Develop Preliminary Grade Estimate (-25%+50%)	22-Mar-21 A	6	07-Apr-21 A		
Scope Comp	CE1510	Develop Electrical Substation Preliminary Scope	24-Mar-21 A	5	24-Mar-21 A		

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Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
	CE1551	N/R - Estimating Request Initiated	07-Apr-21 A	3	07-Apr-21 A	[redacted]	
	CE1552	N/R - Review Preliminary Grade Estimate (-25%+50%)	07-Apr-21 A	5	07-Apr-21 A		
	CE1541	N/R - Develop P6 Schedule for Release EPAC Submittal	07-Apr-21 A	5	07-Apr-21 A		
	PAPF1510	N/R - Submit Partial Funding PAF for Internal Review	07-Apr-21 A	3	07-Apr-21 A		
	PAPF1511	N/R - Incorporate Internal Review Comments & Submit Partial Funding PAF to EPAC for Review	07-Apr-21 A	3	07-Apr-21 A		
	PAPF1512	N/R - Present Partial Funding PAF at EPAC Meeting	07-Apr-21 A	1	07-Apr-21 A		
	PAPF1513	N/R - Incorporate EPAC Partial Funding PAF Review Comments	07-Apr-21 A	3	07-Apr-21 A		
EPAC-P	PAPF1514	N/R - EPAC Partial Funding Approval -Release	07-Apr-21 A	10	07-Apr-21 A		
EST-PART	CE1562	N/R - Develop Unitized Cost Estimate	07-Apr-21 A	5	07-Apr-21 A		
PPA-PF	FPR1515	N/R - Partial Funding Release Complete Power Plan Approval (Release SCHEDULE TASK/MILESTONE)		0	07-Apr-21 A		
CS004171.01.09.4 EPAC Full Funding			15-Feb-21 A	294	12-May-22		
Construct	DE1724	Release Constructability Form Review Complete	15-Feb-21 A	4	24-Mar-21 A		
	DE1722	Conduct Planning Constructability Walk Down	05-Mar-21 A	1	17-Mar-21 A		
	DE1730	N/R - Review Siting & Permitting (If Required)	15-Mar-21 A	5	15-Mar-21 A		
	DE1710	Develop Electrical Substation Concept Scope	18-Mar-21 A	5	19-Mar-21 A		
	DE1741	Develop P6 Schedule for Release EPAC Submittal	24-Jan-22 A	5	24-Jan-22 A		
	DE1700	Conduct Initial Risk Management & SCLL Review (Project Initiator & PM)	01-Feb-22 A	3	01-Feb-22 A		
EST-FULL	DE1750	Develop Planning Grade Estimate (-25%+25%)	02-Feb-22 A	5	13-Feb-22 A		
	DE1751	Estimating Request Initiated	04-Feb-22 A	2	04-Feb-22 A		
	DE1752	Review Planning Grade Estimate (-25%+25%)	04-Feb-22 A	5	10-Feb-22 A		
	DE1740	Preliminary ISD Date Locked Down	07-Feb-22 A	10	07-Feb-22 A		
	DE1721	Schedule Planning Constructability Walk Down	25-Feb-22 A	6	04-Mar-22 A		
	PAFF1710	Submit Full Funding PAF for Internal Review	01-Apr-22*	1	01-Apr-22		
PAF Submit	PAFF1711	Incorporate Internal Review Comments & Submit Full Funding PAF to EPAC for Review	04-Apr-22*	1	04-Apr-22		
EPAC-F	PAFF1712	Present Full Funding PAF at EPAC Meeting		0	13-Apr-22*		

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Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
	PAFF1713	Incorporate EPAC Full Funding PAF Review Comments	14-Apr-22*	3	18-Apr-22	[redacted]	
	PAFF1714	EPAC Full Funding Approval - Release	19-Apr-22*	18	12-May-22		
PPA-FF	FFR1715	Full Funding PowerPlan Approval		0	12-May-22*		
CS004171.01.1 T-Minus Milestones			09-Mar-21 A	399	14-Nov-22		
CS004171.01.1.01 Civil T-Minus Milestones			19-Mar-21 A	539	31-Oct-22		
CS004171.01.1.01.01 T-Minus Milestones Civil			19-Mar-21 A	539	31-Oct-22		
ENG-SCOPE	AT3001	A-T-30.01 Engr Project Scoping Document Issued (Scope Lockdown) ** Re-instated **		0	19-Mar-21 A		
	AT0814	Construction Contracts / PSA in Place		0	23-Aug-21 A		
ENG-PRELIM	AT2605	Preliminary Design / Engineering Completed - Civil		0	14-Feb-22 A		
	AT0203	Go / No-Go [CAN] Construction Authorization Notice Form Complete		0	08-Apr-22		
ENG-DTL	AT1811	Detailed Design / Engineering Completed - Civil		0	27-Apr-22		
BG-IFC	AT0805C	Civil IFC - Civil (BG) w/BOM		0	25-May-22		
	AT0401	Final Civil Material Delivered to Site		0	02-Oct-22		
SOC	AT00	A-T-00 Start Construction Civil	31-Oct-22*	0			
CS004171.01.1.02 Electrical T-Milestones			09-Mar-21 A	399	14-Nov-22		
CS004171.01.1.02.01 T-Minus Milestones Electrical			09-Mar-21 A	399	14-Nov-22		
	BT1805	N/R A-T-18.05 NX-9 Rating to LCC + ISO for New 'T' Equipment (NC=Per Procedure/120 calendar days before DOE)		0	09-Mar-21 A		
	BT1003	N/R - PPA (I.3.9) Approval Received		0	29-Mar-21 A		
	BT0901	N/R - T-09 Protection System Data - OP-24 Requirement (Tie to First Start of Construction(T-0) that requires an Outage)		0	29-Mar-21 A		
ES-RSET	BT0404	N/R All Final Relay Protective Settings Issued		0	12-Apr-21 A		
	BT0301	T-03 NX-9 Ratings to LCC & ISO for Existing Equipment (EM=Per Procedure/15 business days before DOE)		0	26-Jul-21 A		
	BT0814	Construction Contracts / PSA In Place (Internal Resources)		0	23-Aug-21 A		
ENG-PRELIM	BT2605	Preliminary Design / Engineering Completed		0	28-Mar-22 A		
	BT0203	Go / No-Go [CAN] Construction Authorization Notice Form Complete		0	08-Apr-22		
ENG-DTL	BT1811	Detailed Design / Engineering Completed		0	28-Apr-22		

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Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
ENG-IFC	BT0805P	IFC - P&C w/BOM		0	08-Jun-22		
AG-IFC	BT0805E	IFC - Electrical (AG) w/BOM		0	08-Jun-22		
	BT1201	SCADA Data (Tab) Sheets Sent to LCC		0	08-Jun-22		
	BT1202	P/C Description / Draft OI Issued To LCC		0	08-Jun-22		
	BT2404	Determine / Assign Commissioning Engineer		0	12-Jun-22		
	BT0401	Final Material Receipt Review Completed *ES Purchased*		0	01-Oct-22		
	BT1301	Commissioning Plan Complete		0	02-Oct-22		
	BT0409	T-04 ALL FIRM TOA APPLICATIONS DUE TO LCC		0	04-Nov-22*		
	BT00	T-00 Start of Construction	14-Nov-22*	0			
CS004171.04 SITING APPROVALS AND PERMITS			09-Mar-21 A	50	09-Mar-21 A		
CS004171.04.01 PERMITTING - Local - Short Form			09-Mar-21 A	45	09-Mar-21 A		
	A3590	N/R - Permitting - PM Send Scope to Siting Team	09-Mar-21 A	5	09-Mar-21 A		
	A3600	N/R -Permitting - Siting Team Review Scope to Determine Siting Requirements (e.g. zoning)	09-Mar-21 A	10	09-Mar-21 A	Siting and Permitting	
	A3610	N/R -Permitting - If Requirements Exist, Pursue Appropriate Actions, Permits, etc.	09-Mar-21 A	30	09-Mar-21 A	Siting and Permitting	
CS004171.04.02 PERMITTING - Local - Long Form			09-Mar-21 A	50	09-Mar-21 A		
	A3620	N/R -Permitting - PM Send Scope to Siting Team	09-Mar-21 A	5	09-Mar-21 A		
	A3630	N/R -Permitting - Siting Team Review Scope to Determine Siting Requirements (e.g. zoning)	09-Mar-21 A	10	09-Mar-21 A	Siting and Permitting	
	A3640	N/R -Permitting - If transformer changes substation footprint, conduct zoning review	09-Mar-21 A	5	09-Mar-21 A	Siting and Permitting	
	A3650	N/R -Permitting - Meet with Building Inspector	09-Mar-21 A	10	09-Mar-21 A	Siting and Permitting	
	A3660	N/R -Permitting - Obtain Special Use Permit	09-Mar-21 A	20	09-Mar-21 A	Siting and Permitting	
CS004171.05 Engineering & Design			03-Nov-20 A	453	08-Dec-22		
CS004171.05.00 Engineering Services Staffing			03-Nov-20 A	70	03-Feb-21 A		
	A3370	Decision Required Regarding Engineering Staffing (ES, COC, BID)	03-Nov-20 A	1	04-Nov-20 A		
CS004171.05.00.02 EOC - Engineer of Choice Process			03-Nov-20 A	70	03-Feb-21 A		
	TMP1140	EOC- Provide RFP to Vendors	03-Nov-20 A	2	04-Nov-20 A		

TASK filter: All Activities

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Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
	TMP1150	EOC- Vendors Responds with Proposal	05-Nov-20 A	5	18-Nov-20 A	RLC Engineering	
	TMP1180	EOC- EOC Committee Reviews at Bi-Weekly Meeting & Approves	26-Jan-21 A	1	26-Jan-21 A		
	TMP1200	EOC- DR Prepared by Project Engineer & Project Controls #500065	29-Jan-21 A	3	03-Feb-21 A		
	TMP1220	EOC- PO Issued for Vendor -Preliminary Design Effort	01-Feb-21 A	10	03-Feb-21 A	Purchasing Departmen	
	TMP1240	EOC- CO Issued for Vendor - Design Effort	01-Feb-21 A	10	03-Feb-21 A	Purchasing Departmen	
	TMP1250	EOC- NTP Issued for Vendor -Preliminary Design Effort	01-Feb-21 A	4	03-Feb-21 A	Purchasing Departmen	
CS004171.05.01 Civil Engineering			11-Feb-22 A	72	25-May-22		
CS004171.05.01.01 Civil Engineering Detail Design			11-Feb-22 A	52	27-Apr-22		
V-DTL	CE1200	Vendor Engineer Develop Civil Substation Detail Design	11-Feb-22 A	11	14-Apr-22	RLC Engineering	
ES-DTL	CE1210	ES Engineering Review Civil Substation Detail Design	15-Apr-22*	9	27-Apr-22		
CS004171.05.01.02 Civil Engineering IFC Design			28-Apr-22	20	25-May-22		
V-IFC	CE1300	Vendor Engineer Develop Civil Substation IFC	28-Apr-22	10	11-May-22	RLC Engineering	
	CE1310	ES Engineering Review Civil Substation IFC	12-May-22	10	25-May-22		
ES-IFC	CE1320	ES Engineering Issue Civil Substation IFC	25-May-22	1	25-May-22		
CS004171.05.02 Electrical Engineering			26-Jul-21 A	345	08-Dec-22		
CASCADE	CSD1000	PE Initiate CASCADE Forms (Appendix A) for Construction Package - Phase 1	02-Jun-22	5	08-Jun-22		
CS004171.05.02.01 Electrical Engineering Detail Design			11-Feb-22 A	53	28-Apr-22		
V-DTL	EE1200	Vendor Engineer Develop Electrical Substation Detail Design	11-Feb-22 A	11	14-Apr-22	RLC Engineering	
ES-DTL	EE1210	ES Engineering Review Electrical Substation Detail Design	15-Apr-22*	10	28-Apr-22	Gregory T. Armbruster	
CS004171.05.02.02 Electrical Engineering IFC Design			29-Apr-22	28	08-Jun-22		
V-IFC	EE1300	Vendor Engineer Develop Electrical Substation IFC	29-Apr-22	18	24-May-22	RLC Engineering	
ES-IFC	EE1310	ES Engineering Review Electrical Substation IFC	25-May-22	10	08-Jun-22		
CS004171.05.02.1 Substation NX9 For Existing Equipment			26-Jul-21 A	345	08-Dec-22		
CS004171.05.02.1.01 Substation - Preliminary Thermal Data			26-Jul-21 A	3	28-Jul-21 A		
	NX9A-NC19	N/R - Scheduler @ NURS email "Submitted for PP Review" - Updates NURS with DOE	26-Jul-21 A	1	26-Jul-21 A		

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Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
	NX9A-NC23	N/R - Scheduler @ NURS email "Submitted for DOE Monitoring" - Updates T-3, EquipDOE, Revs DOE per M7-EN-3006	26-Jul-21 A	1	26-Jul-21 A		
	NX9A-NC07	N/R (per M.L. 7/28/21) LTRC Reviews and Makes "GO / NO-GO" Decision for Thermal Ratings	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC01	N/R (per M.L. 7/28/21) PE Updates 1-Line Nomenclature Dwgs & Complete PE Checklist M7-EN-3006.2	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC11	N/R (per M.L. 7/28/21) P&C Develops and Provides LTRC with P&C Checklist (M7-EN-3006.1)	28-Jul-21 A	1	28-Jul-21 A		
NX-9	NX9A-NC21	N/R (per M.L. 7/28/21) TRC Review and Submit NX-9 Data to LCC + ISO-NE for S/S Thermal Rating	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC09	N/R (per M.L. 7/28/21) LTRC Requests P&C Checklist	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC17	N/R (per M.L. 7/28/21) LTRC Sends Thermal Rating Data for Approval & Submit to NURS	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC15	N/R (per M.L. 7/28/21) TRC Reviews and Approves Thermal Rating Data	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC13	N/R (per M.L. 7/28/21) LTRC Reviews and Sends Thermal Rating Data for TRC Review	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC03	N/R (per M.L. 7/28/21) LTRC Reviews and Makes "GO / NO-GO" Decision for 1-Line Nomenclature	28-Jul-21 A	1	28-Jul-21 A		
	NX9A-NC05	N/R (per M.L. 7/28/21) LTRC Submits 1-Line Nomenclature to TRC	28-Jul-21 A	1	28-Jul-21 A		
CS004171.05.02.1.03 Substation - NX-9 Pre NX9-DOE			06-Dec-22	1	06-Dec-22		
	NX9500	Scheduler - Send Email for 48Hrs Notification before DOE.	06-Dec-22	1	06-Dec-22		
CS004171.05.02.1.04 Substation - NX-9 Post NX9-DOE/ISD			28-Jul-21 A	343	08-Dec-22		
	NX9FINAL60	N/R (per M.L. 7/28/21) Receive + Issue Final Affirmed NX-9 Data to NURS	28-Jul-21 A	1	28-Jul-21 A		
	NX9FINAL50	Review + Affirm Accuracy of NX-9 for ISO Submission (Tie after Equip DOE or ISD)	06-Dec-22	3	08-Dec-22		
CS004171.05.06 P&C Engineering			12-Apr-21 A	292	08-Jun-22		
CASCADE	CSD1030	PE Initiate CASCADE Forms (Appendix A) for Construction Package - Phase 1	02-Jun-22	5	08-Jun-22		
CS004171.05.06.01 P&C Engineering Detail Design			11-Feb-22 A	53	28-Apr-22		
V-DTL	PC1100	Vendor Engineer Develop P&C Detail Design	11-Feb-22 A	11	14-Apr-22	RLC Engineerin	
ES-DTL	PC1110	ES Engineering Review P&C Detail Design	15-Apr-22*	10	28-Apr-22		
CS004171.05.06.02 P&C Engineering IFC Design			12-Apr-21 A	292	08-Jun-22		
CS004171.05.06.02.03 P&C Design Package			14-Feb-22 A	81	08-Jun-22		
V-IFC	PC1320	Vendor Engineer Develop P&C IFC	29-Apr-22	18	24-May-22	RLC Engineerin	
	PC1330	ES Engineering Review P&C IFC	25-May-22	10	08-Jun-22		

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Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
CS004171.05.06.02.03.1 Outage Permit Process			14-Feb-22 A	30	14-Feb-22 A		
	OPERM1010	Outage Permit / TOA Request - Review/ Approve (18 weeks)	14-Feb-22 A	20	14-Feb-22 A		
	OPERM1000	Submit Outage Permit / TOA Request - (18 weeks)	14-Feb-22 A	10	14-Feb-22 A		
CS004171.05.06.02.01 Relay Settings			12-Apr-21 A	1	12-Apr-21 A		
	A7420	N/R (per TP-4/12/21)P&C Review Relay Settings Basis Document and Provides Comments	12-Apr-21 A	1	12-Apr-21 A		
	A7540	N/R (per TP-4/12/21)Vendor Prepares Relay Settngs Basis Document (IFR)	12-Apr-21 A	1	12-Apr-21 A	RLC Engineering	
V-RSET	A7500	N/R (per TP-4/12/21)Vendor Incorporate Relay Settings Comments & IFC	12-Apr-21 A	1	12-Apr-21 A	RLC Engineering	
	A7440	N/R (per TP-4/12/21)P&C Prepare and Send Relay Settings to Field	12-Apr-21 A	1	12-Apr-21 A		
	A7550	N/R (per TP-4/12/21)Provide Relay Setting Information to Vendor (ASPEN Model, As-Built Settings, Line Constants)	12-Apr-21 A	1	12-Apr-21 A		
	A7551	N/R (per TP-4/12/21)Vendor Makes Go/No-Go Decision on Relay Settings	12-Apr-21 A	1	12-Apr-21 A	RLC Engineering	
	PC1400	N/R (per TP-4/12/21)Complete P&C Relay Settings		0	12-Apr-21 A		
CS004171.06 Material Procurement			13-May-22	98	02-Oct-22		
CS004171.06.2 Material - Electrical			09-Jun-22	80	01-Oct-22		
DR-RM	DSSE-520	MATERIAL - Electrical - Prepare & Issue DR	09-Jun-22	5	15-Jun-22		
DR-AGMAT	DSSE-530	Electrical (AG) Material Ordered		0	15-Jun-22		
	DSSE-1020	MATERIAL - ELectrical - Procurement Issue PO	16-Jun-22	10	29-Jun-22	Purchasing Departmen	
	DSSE-1030	MATERIAL - ELectrical - Material Vendor Delivery Leadtime	30-Jun-22	93	30-Sep-22	Material Coordinator	
M-DELIV	DSSE-550	MATERIAL - Electrical - Confirm Material Delivery to Site	01-Oct-22	1	01-Oct-22	Material Coordinator	
CS004171.06.3 Material - Civil			13-May-22	98	02-Oct-22		
DR-RM	DSSE-500	MATERIAL - CIVIL - Prepare & Issue DR	13-May-22	5	19-May-22		
DR-BGMAT	DSSE-540	Civil (BG) Material Ordered		0	19-May-22		
	DSSE-1040	MATERIAL - CIVIL - Procurement Issue PO	20-May-22	10	03-Jun-22	Purchasing Departmen	
	DSSE-1050	MATERIAL - CIVIL - Material Vendor Delivery Leadtime	04-Jun-22	120	01-Oct-22	Material Coordinator	
M-DELIV	DSSE-560	MATERIAL - CIVIL - Confirm Material Delivery to Site	02-Oct-22	1	02-Oct-22	Material Coordinator	
CS004171.06.6 Material - Breakers			09-Jun-22	80	01-Oct-22		

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Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
DR-MM	DSSE-1150	MATERIAL - BREAKER - Prepare & Issue DR (breakers)	09-Jun-22	5	15-Jun-22	[redacted]	
DR-AGMAT	DSSE-1180	Breaker (AG) Material Ordered		0	15-Jun-22		
	DSSE-1160	MATERIAL - BREAKER - Procurement Issue PO	16-Jun-22	10	29-Jun-22	Purchasing Departmen	
	DSSE-1140	MATERIAL - BREAKER - Material Vendor Delivery Leadtime	30-Jun-22	93	30-Sep-22	Material Coordinator	
M-DELIV	DSSE-1130	MATERIAL - BREAKER - Confirm Material Delivery to Site	01-Oct-22	1	01-Oct-22	Material Coordinator	
CS004171.06.1 Material - Switch			09-Jun-22	80	01-Oct-22		
DR-MM	DSSE-1250	MATERIAL - Switch - Prepare & Issue DR (breakers)	09-Jun-22	5	15-Jun-22		
DR-AGMAT	DSSE-1270	Switch (AG) Material Ordered		0	15-Jun-22		
	DSSE-1260	MATERIAL - Switch - Procurement Issue PO	16-Jun-22	10	29-Jun-22	Purchasing Departmen	
	DSSE-1240	MATERIAL - Switch - Material Vendor Delivery Leadtime	30-Jun-22	93	30-Sep-22	Material Coordinator	
M-DELIV	DSSE-1230	MATERIAL - Switch - Confirm Material Delivery to Site	01-Oct-22	1	01-Oct-22	Material Coordinator	
CS004171.07 Construction			31-Mar-21 A	433	15-Dec-22		
CS004171.07.1 Construction Services Selection			31-Mar-21 A	318	23-Aug-21 A		
	A3550	STAFFING DECISION: EVERSOURCE OR OUTSOURCE BID/COC CONSTRUCTION	31-Mar-21 A	5	31-Mar-21 A		
CS004171.07.1.01 Contractor Of Choice Group			31-Mar-21 A	35	31-Mar-21 A		
	A3390	N/R - CONST.SERVICES - COC - Eversource Provides Spec / RFQ to COC	31-Mar-21 A	5	31-Mar-21 A	Purchasing Departmen	
	A3400	N/R - CONST.SERVICES - COC - COC Evaluates Spec and Provides Quote	31-Mar-21 A	10	31-Mar-21 A	CT/WMA.C Contractor-	
	A3410	N/R - CONST.SERVICES - COC - Eversource Reviews Quote from COC	31-Mar-21 A	10	31-Mar-21 A		
	A3420	N/R - CONST.SERVICES - COC - Eversource Awards Contract - PO Issued	31-Mar-21 A	10	31-Mar-21 A	Purchasing Departmen	
CS004171.07.1.02 BID Process Group			23-Aug-21 A	65	23-Aug-21 A		
	A3430	N/R - CONST.SERVICES - BID - Eversource provide Spec / RFP	23-Aug-21 A	15	23-Aug-21 A	Purchasing Departmen	
	A3440	N/R - CONST.SERVICES - BID - Contractors Evaluate RFP and Provide Proposal	23-Aug-21 A	15	23-Aug-21 A	CT/WMA.C Contractor-	
	A3450	N/R - CONST.SERVICES - BID - Eversource reviews contractor proposals	23-Aug-21 A	15	23-Aug-21 A		
	A3460	N/R - CONST.SERVICES - BID - Contract is Awarded - PO Issued	23-Aug-21 A	20	23-Aug-21 A	Purchasing Departmen	
CS004171.07.03 Construction - Civil			31-Oct-22	36	05-Dec-22		

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Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
	A1120	Construction - Civil	31-Oct-22*	36	05-Dec-22	Const Rep Field Sup -	
CS004171.07.04 Construction - Electrical			31-Oct-22	36	05-Dec-22		
	A1130	Construction - Electrical	31-Oct-22*	36	05-Dec-22	Const Rep T Generic -	
CS004171.07.92 Construction - Const. Rep Tasks			26-Oct-22	51	15-Dec-22		
	A1250	Construction Rep SUBMIT OUTAGE REQUESTS for NON-transformer equipment (4 weeks before outage) - Group 1	26-Oct-22*	10	04-Nov-22	Construction Rep	
	A1260	Construction Rep Finalize CASCADE Forms (within 14 days folloiwng ISD) - Group 1	06-Dec-22	10	15-Dec-22	Const Rep T Generic -	
CS004171.07.94 Construction Resource Tracking			31-Oct-22	36	05-Dec-22		
	ConRep-S	CONSTRUCTION REP	31-Oct-22	36	05-Dec-22	Construction Rep	
	CONSTelec	CONSTRUCTION - ELECTRICIAN	31-Oct-22	36	05-Dec-22	Distribution - S/S	
CS004171.07.96 Construction Outages			31-Oct-22	36	05-Dec-22		
CRH	CSM	Construction Start Milestone	31-Oct-22*	0			
	SWOUP1B1	Construction - Switch Out (OCB: 1)	31-Oct-22	1	31-Oct-22	Distribution Switching	
OUT	TOA-Const1	OUTAGE / General Construction Work (OCB: 1)	31-Oct-22	10	09-Nov-22	Construction Resources	
	SWINP1B1	Construction - Switch In (OCB: 1)	09-Nov-22	1	09-Nov-22	Distribution Switching	
	SWOUP1B2	Construction - Switch Out (OCB:2)	12-Nov-22	1	12-Nov-22	Distribution Switching	
OUT	TOA-Const2	OUTAGE / General Construction Work (OCB:2)	12-Nov-22	7	18-Nov-22	Construction Resources	
	SWINP1B2	Construction - Switch In (OCB:2)	18-Nov-22	1	18-Nov-22	Distribution Switching	
	CFM	Construction Finish Milestone		0	05-Dec-22		
ISD	ISD	EQUIPMENT IN SERVICE DATE (requires FOOB constraint)		0	05-Dec-22*		
CS004171.09 Test And Commission			31-Mar-21 A	409	04-Dec-22		
CS004171.09.01 TEST - SERVICES STAFFING DECISION			31-Mar-21 A	352	09-Sep-22		
	A1010	STAFFING DECISION: EVERSOURCE OR OUTSOURCE BID/COC TESTING	05-Apr-21 A	5	09-Apr-21 A		
CS004171.09.01.01 TEST SERVICES - CONTRACTOR OF CHOICE			31-Mar-21 A	40	31-Mar-21 A		
	A3470	N/R - TEST SERVICES - COC - Eversource Provides Spec / RFQ to COC	31-Mar-21 A	5	31-Mar-21 A	Purchasing Department	
	A3480	N/R - TEST SERVICES - COC - COC Evaluates Spec and Provides Quote	31-Mar-21 A	10	31-Mar-21 A	CT/WMA Test	

TASK filter: All Activities

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Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
	A3490	N/R - TEST SERVICES - COC - Eversource Reviews Quote from COC	31-Mar-21 A	10	31-Mar-21 A	Purchasing Department	
	A3500	N/R - TEST SERVICES - COC - Eversource Awards Contract - PO Issued	31-Mar-21 A	10	31-Mar-21 A	Purchasing Department	
CS004171.09.01.02 TEST SERVICES - BID PROCESS			09-Jun-22	65	09-Sep-22		
	A3510	TEST SERVICES - BID - Eversource provide spec / RFP	09-Jun-22	15	29-Jun-22	Purchasing Department	
	A3520	TEST SERVICES - BID - Contractors Evaluate RFP and Provide Proposal	30-Jun-22	15	21-Jul-22	CT/WMA Test	
	A3530	TEST SERVICES - BID - Eversource reviews contractor proposals	22-Jul-22	15	11-Aug-22	Purchasing Department	
	A3540	TEST SERVICES - BID - Eversource awards contract - PO Issued	12-Aug-22	20	09-Sep-22	Purchasing Department	
CS004171.09.02 LCE Planning			09-Jun-22	137	23-Oct-22		
	LCE100	PM to Request Lead Commissioning Engineer GO/NO-GO	09-Jun-22	2	10-Jun-22		
	LCE200	Assign Lead Commissioning Engineer	11-Jun-22*	2	12-Jun-22		
V-COMPLN	LCE400	Develop Test and Commissioning Plan	12-Sep-22*	21	02-Oct-22	CT/WMA Test	
ES-COMPLN	LCE500	LCE Review and Approve Vendor's Test and Commissioning Plan	03-Oct-22*	21	23-Oct-22	LEAD COMMISSI	
CS004171.09.04 Test Activities			10-Sep-22	86	04-Dec-22		
	LCE310	Mobilize Commissioning Engineer Prior to Construction	10-Sep-22*	2	11-Sep-22	LEAD COMMISSI	
	LCE320	Mobilize Testing Vendor Prior to Construction	10-Sep-22	2	11-Sep-22	CT/WMA Test	
	LCE620	Execute Test and Commissioning Plan	24-Oct-22	16	08-Nov-22	Engineering Contractor	
	LCE610	LCE Oversee Execution of Test and Commissioning Plan	07-Nov-22*	15	21-Nov-22	LEAD COMMISSI	
	LCE700	LCE Ensure Test Group Prepare Electrical Field Mark Ups	27-Nov-22*	8	04-Dec-22	LEAD COMMISSI	
CS004171.10 Project Close-Out			06-Dec-22	48	14-Feb-23		
V-FLDASB	CV1000	FE Prepares Civil Field Mark Ups (Tie after Last Civil Construction Activity)	06-Dec-22	7	14-Dec-22		
V-FLDASB	EV1000	FE Prepare Electrical Field Mark Ups	21-Dec-22	7	30-Dec-22	Tester Not Assigned	
PM	PM1000	PM to Document Civil As-Built Drawings Complete	23-Jan-23	1	23-Jan-23		
ES-FLSASB	CV1500	FE Files Civil Design Drawings at Station	24-Jan-23	5	30-Jan-23		
PM	PM1100	PM to Document Electrical As-Built Drawings Complete (Electrical & P&C)	07-Feb-23	1	07-Feb-23		
ES-FLSASB	EV1500	FE Files Substation Design Drawings at Station	08-Feb-23	5	14-Feb-23		

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Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
ES-FLSASB	PC1500	FE Files P&C Design Drawings at Station	08-Feb-23	5	14-Feb-23		
CS004171.10.01 Civil As-Builts			15-Dec-22	24	20-Jan-23		
ES-ASB	CV1100	Eversource Engineering Prepares & Sends Civil Field Mark Up Packge to Vendor	15-Dec-22	5	21-Dec-22		
V-ASB	CV1200	Vendor Engineering Verifies Civil Mark Ups and Updates As-Built Drawing Package. Submits Final Package to ES	22-Dec-22	7	03-Jan-23	RLC Engineerin	
ES-ASB	CV1300	Eversource Engineering Verifies Quality of Submitted Civil Drawings	04-Jan-23	7	12-Jan-23		
ES-ASB	CV1400	ES Create Civil Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	13-Jan-23	5	20-Jan-23		
CS004171.10.02 Electrical As-Builts			03-Jan-23	24	06-Feb-23		
ES-ASB	EV1100	Eversource Engineering Prepares & Sends Electrical Field Mark Up Packge to Vendor	03-Jan-23	5	09-Jan-23		
V-ASB	EV1200	Vendor Engineering Verifies Electrical Mark Ups and Updates As-Built Drawing Package. Submits Final Package to ES	10-Jan-23	7	19-Jan-23	RLC Engineerin	
ES-ASB	EV1300	Eversource Engineering Verifies Quality of Submitted Electrical Drawings	20-Jan-23	7	30-Jan-23		
ES-ASB	EV1400	Electrical Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	31-Jan-23	5	06-Feb-23		
CS004171.10.03 P&C As-Builts			03-Jan-23	24	06-Feb-23		
ES-ASB	PC1340	Eversource Engineering Prepares & Sends Electrical Field Mark Up Packge to Vendor	03-Jan-23	5	09-Jan-23		
V-ASB	PC1200	Vendor Engineering Verifies P&C Mark Ups and Updates As-Built Drawing Package. Submits Final Package to ES	10-Jan-23	7	19-Jan-23	RLC Engineerin	
ES-ASB	PC1300	Eversource Engineering Verifies Quality of Submitted P&C Drawings	20-Jan-23	7	30-Jan-23		
ES-ASB	PC1310	P&C Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	31-Jan-23	5	06-Feb-23		
CS004171.10.04 Test Close-Out			06-Dec-22	11	20-Dec-22		
	LCE800	LCE Ensures Marked up Prints Ready for Pick-up	06-Dec-22	1	06-Dec-22	LEAD COMMISS	
	LCE900	LCE Review Test Data and Issue Commissioning Report	07-Dec-22	10	20-Dec-22	LEAD COMMISS	
CS004171.10.05 Site Restoration Close-Out			06-Dec-22	10	19-Dec-22		
	A1110	Restore / Remediate Site	06-Dec-22	10	19-Dec-22	CT/WMA,C Contractor-	
CS004171.10.06 Material, Equipment, Cost And Asset Management Close-Out			06-Dec-22	33	24-Jan-23		
	A1020	Cost Analyst Prepares FINAL Units of Property	06-Dec-22	21	05-Jan-23	CT- Cost Analyst	
	A1030	Asset Management Complete Asset Update(s) in CASCADE	16-Dec-22	25	24-Jan-23		
CS004171.10.07 Project Management Close-Out			06-Dec-22	48	14-Feb-23		

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Activity Flag	Activity ID	Activity Name	Start	Original Duration	Finish	Resources	Activity Schedule
	DSSE-1100	Complete TD-707 Turnover Document / Forward to SOC & Mailing List	06-Dec-22	5	12-Dec-22	Construction Rep	[redacted]
	A1040	PM Prepares Closeout Documentation, Lessons Learned Meeting, etc.	06-Dec-22	30	19-Jan-23	[redacted]	
	FINISH	Project / Work Order Complete (FINAL SCHEDULE TASK/MILESTONE)		0	14-Feb-23		
CS004171.13 Overhead / Indirects			28-Mar-22	10	08-Apr-22		
CS004171.13.01 Project Management			28-Mar-22	10	08-Apr-22		
	A1170	Prepare Civil CAN (Construction Authorization Notice)	28-Mar-22	10	08-Apr-22		
	B1170	Prepare Electrical CAN (Construction Authorization Notice)	28-Mar-22	10	08-Apr-22		

TASK filter: All Activities

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Constructability Review Form: **Substation**

Project Title: [redacted] OCB Replacement Release	☐	Prior Constructability Review Performed?
	☐	Program Related Site Specific Review?
Project Numbers(s): CS00417	**Project Constructability Phase:**	
Date(s) of Constructability Review: 02/17/2021	☐ Conceptual Engineering Design	
02/17/2021	☒ Preliminary Engineering Design	
	☐ Detailed Engineering Design	
Project Scope Statement: [redacted]		

Department Review/Walkdown Attendees*:

Required [X]	Attended [X]	Department	Name	Required [X]	Attended [X]	Department	Name
☒	☒	Project Management	[redacted]	☒	☒	S/S Engineering	[redacted]
☐	☐	Asset Management		☐	☐	P&C Engineering	
☒	☒	Constr. Management	[redacted]	☐	☐	Civil Engineering	
☐	☐	S/S Technical / LCE		☐	☐	Telecom	
☐	☐	S/S Operations**		☐	☐	Environmental	
☐	☐	Field Engineering		☐	☐	Real Estate	
☐	☐	Line Engineering		☐	☐	T&D ROW	
☐	☐	Vegetation Management		☐	☐	Survey Engineering	
☐	☐	Siting		☐	☐	Cost Estimating	
☐	☐	Safety		☐	☐	Outreach (SCS)	
☐	☐	SCADA		☐	☐	Material Procurement	

* **Sign-off in the table above for the Detailed Engineering Design Constructability Review indicates that all Action Items/Concerns from prior Constructability Reviews have been mitigated/resolved as documented in this form. Not every department is required to attend walkdowns for every project but should be consulted for project impact considerations**

** Internal Eversource Substation Operations must be included in review even if external construction resources are planned

Project Manager certifies that this review was performed to completeness, that all applicable departments were informed of the project and have had opportunity to provide input to this review:_[redacted]_*03/24/2021*_____ [redacted] _____*Name / Signature*

EVERSOURCE

Constructability Review Form: **Substation**

Documents available for use on Constructability Review					
[X]	Deliverable	[X]	Deliverable	[X]	Deliverable
☒	Initial Scope -Birdseye site plan -General Arrangement	☐	Preliminary Drawings -Civil Site Drawing -Electrical Drawing -Section Drawings	☐	Prints in hand for marking up -Panel Front/Read View -Control Enclosure Layout -Floor / Wall Plans
☐	Detailed Scope Document	☐	Previous Notes	☐	Identify Required Contractors
☒	Proposed Schedule	☐	Major Material List	☐	Replace / Reuse of equipment
☐	Construction Sequence/Timeline	☒	Major Equipment Items	☐	Pre-Walkdown Comments / Observations

Action Items and Resolutions:

Item No.	Const. Review Action Item/Concern	Design Resolution/Mitigation:
1	Verify need for aux. transformers required at breakers that do not have a neutral for the necessary 120 volts.	Electrical Engineering
2	Civil engineers to verify structural integrity of existing foundations & structural steel supports	Civil Engineering
3	New switches, for [redacted] if not designed at same height and length, may require bus alterations/adjustment (bus side), conductor alterations (cable side).	Electrical Engineering
	Scope [redacted] switches with ground studs applied to breaker-side of switch and to be independent of the cable connections (i.e. extension plates)	Electrical Engineering
4	New switches, for [redacted] if not designed at same height, may require height mods, in additional to, simply cutting into bus and adding connectors.	Electrical Engineering
5	[redacted] replacements will need to consider the lack of space existing between structures and the benefits of being able to pre-build as much of the new structure as feasibly possible. (i.e. separate pad mount location and different placement of sec. disconnects and dist. panels. Allows to pre-build and minimize outage durations)	Electrical Engineering

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
A	**General**		
1	**Any safety hazards specific to the facility? i.e. Low Bus, Deterioration, etc.**	☒	
2	**Prior known Site Specific Conditions - Common or Obvious station Issues**	☐	May be issues with control cables

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Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
3	**Scope Adequately Developed** Consider Physical Installation, P&C Scope, Civil Scope, Engineering studies, Design standard adherence	☐	See action items above.
4	**Materials Identified/Ordered** Long Lead Equipment? Specialty material considerations? Review BOM lead times and project need dates Bids for Specialty Major Materials - Identify Specialty Equipment & Materials potentials - temporary/replacement Any Materials needed to facilitate construction access?	☐	Breakers not ordered, need project approval. Could be delayed at US/Mexico border. 21+ weeks lead-time for breakers.
5	**Any impacts that would drive T-Line Eng Scope?**	☒	
6	**Any other known projects that could overlap or impact outage work?**	☐	Asset management to identify.
B	**Construction**		
1	**Site Plan / Access:** -Confirm maintenance access for proposed new or replaced equipment -Review station expansion areas (if needed) for structures, old foundations, etc. -Verify clear footprint for yard equipment / Property Plan -General access to site, can areas outside substation be utilized? -Substation Entry Plan (driveway and drive path modifications) -Site Development Plan (grading and drainage) with Cut/Fill -Existing Rock Conditions? Potential Impacts (rock quantity)? -Any Sanitary Civil Requirements? (Septic tanks, etc) -Assess condition of existing yard equipment foundations and viability for reuse (if proposed)	☐	- - - - - - - - - - - - - See action items above.
2	**Any Substation Access and site/yard access Limitations?** -Review turning radius for delivery trucks (if critical) -Identify Office Trailer / Container / Dumpster Space + source of utilities for construction trailer(s) if needed -Weather impacts to Site (Snow Placement) -Identify Material Laydown and Security -Construction permit for trailers outside substation fence?	☐	- No Issues - Sufficient room for trailers & dumpsters. - - N/A - Space for material is sufficient. - N/A

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	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
3	**Outage Planning & Construction Sequence** -Working Clearances - Review electrical clearances for equipment during construction – Approach Distances – Outage Requirements to maintain electrical clearances throughout proposed installation -As-Built drawing review (contacts and contributions) -Outage boundaries -Phased approach needs for additional mobilizations -Detail Design package align with schedule and outage sequence? -Lead Commissioning Engineer (LCE), Substation Operations, and Outage Planner - Review or give input to planned construction sequence to insure it is reasonable and scheduled outages associated with the sequence -Review or give input to planned construction sequence to insure it is reasonable -Verify outage sequence supports the planned construction sequence	☐	- - CR to utilize. - TBD - N/A - TBD -TBD -Further breaker control scheme investigation needed to complete outage requirements. -TBD
4	**Need for mobile ~~generator~~ Transformer and where connected (if needed)**	☐	[redacted]
5	**Need for mobile battery and where connected (if needed)**	☒	
6	**Energization Plan** What outages are required, Detailed look at contributions to equipment, Detailed look at protection zone changes, Locked sequence or random outages, Outage durations minimized Mobile transformer, Additional outage requirements, Working clearance, Railroad Catenaries, Distribution overhead/underground/networks, Fiber outage, SCADA outage, Relay permissions	☐	To be established by Test Group/CR/CM and reviewed by LCE once IFC drawings issued.
7	**Identify Required Oversite Needed - Estimated level of CR and LCE support needed**	☐	1 LCE and 1 CR required
8	**OT work required or Notable Permit Conditions (special hours)?**	☐	May need weekend work or extended days if schedule is delayed or system reliability dictates.
9	**Seasonal or weather conditions impacts?**	☐	Breaker replacements and XFMR outages are prohibited in the summer. Inclement weather may impact schedule.
10	**Identify Required Depts for Construction? (who is constructor ?)**	☐	TBD
11	**Specialty Contractors Required?**	☐	

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	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
12	**Unique Equipment Considerations, Gas insulated substation, Gas insulated line, Gas insulated bus, Pass Breaker, Statcom, Sync Condenser**	☐	
13	**Underground Obstructions** -Drawing review concerns? -Is preconstruction or test excavation needed? -Is reuse of underground control cables / Conduits /replace Non-Shielded Cable feasible (if applicable) -Are spare conduits available? Are they useable? -Review if any areas will need to be plated for increased load bearing for equipment access (i.e. large Xfmr, etc.)	☐	All conductors should be meggered and replaced if found compromised.
14	**Any other items missing in scope or could be underfunded?**	☐	See action items above.
15	Coordination of boundaries/seams (Identification of point of demarcation for connection to existing equipment and/or for coordination with other municipalities)	☐	
C	**Environmental**		
1	Soil Pre-Characterization or Grab Sampling Completed/Planned	☒	
2	Has Desktop investigation and EAD Review form been completed.	☒	
3	Dewatering requirements	☒	
4	Risk or presence of PCB's/Asbestos/Lead/SF6	☐	TBD. Potential PCB oil in existing breakers & possible asbestos wiring.
5	Permit requirements (Wetlands, Rare Species, etc)	☒	
6	Stormwater Considerations	☒	
7	Transformer Spill Containment Recommended?	☒	
8	Expanding Footprint / New Buildings or future Expansion Plans? (Enviro Impact)	☒	
D	**Siting, S&CS, and T&D Real Estate**		
1	Expanding Footprint / New Buildings or future Expansion Plans?	☒	
2	Installation is within Eversource Rights? - Rights and Restrictions Review	☒	
3	Proposed Equipment on same property? - Any Encroachments	☒	
4	Identify existing lighting and determine if additional lighting is needed?	☒	

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	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
5	Review for roadway, gate access, trailers, equip height, noise, weekend/night work, or any potential public disturbance related to work	☒	
6	Visual mitigation screening considerations (feasibility or location)	☒	
7	Neighbor/Abutter impacts (noise, visual, sensitive abutters)	☒	
E	**Engineering**		
1	**Scope of Work** Identify if high level scope sufficiently detailed? Any remote station impacts? Does title match the project deliverable/intent?	☐	Scope is not sufficiently detailed. (See Action Items and Resolutions)
2	**Ratings & Dimensions** for Major Equipment. Any concerns upon field review? Equipment Rating One Line (and/or equipment thermal ratings tables) - Review for any errors in field	☐	Design per Eversource standards and station specific needs.
3	**Materials** Any concerns with BOM/Major Materials Review? Where will new vs removed equipment go? Review for OH and UG Items	☐	No material ordered. Plenty of room to store old and new.
4	**Control House** - Review: Unmapped equipment interferences, Control/Battery Enclosure Layout, HVAC System (if equipment added), space for new or modified equipment, AC / DC station service and loading, Panel Space, Expansion, one-line and/or riser type panelboard drawings, other..	☒	
5	Identification of Unique Requirements, i.e. (access bridges, station service, etc.)	☒	
6	**BPS Separation Requirements** Is this BPS Substation? Y/N (part of PAF) Changes to pre-existing BPS standards?	☒	
7	IEC 61850 Substation Automation and Communication Requirements - Any Impacts/Retrofit needed?	☒	
8	Any Upgrades to ES Standards - Is retrofit needed to bring up to ES standards? Can that be done?	☒	

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Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
9	**Wall, Fence, Gate, and Foundation Considerations** -Any permanent / temporary alterations or relocations required? -Take measurements for Foundation quantities, dimensions and concrete volumes -CIP Review/Ballistic needs. Any Physical Security Requirement Consideration? -Any impacts to construction plan?	☐	Foundations need to be reviewed by civil engineers to verify suitable for re-use or need to be upgraded.
10	**Below Grade / Enclosure Raceway** - If possible, evaluate existing raceway and review spacing requirements. Review for any subsurface investigation needs or potential below grade obstructions. GPR/test pits needed? Geotechnical Investigation - is soil boring or resistivity investigation needed?	☐	TBD - If foundations need alterations that warrant.
11	**Grounding Plan (Ground Grid)** - Will footprint impact layout or other equipment? Identify locations to improve grounding. Impacts to foundations and ground grid plans. Observations on wetlands or ability to perform tests	☒	
12	Any Lighting Plan & Fixture Schedule Considerations?	☒	
13	Any Steel Structural Plan Considerations?	☐	Will need steel for new breakers
14	Sound Study Needed? Pre-Project Sound Measurements Needed? Sound Walls?	☒	
15	Engineering Estimates for Design and Technical Support? (EE and EOC) Total Project	☒	
16	Nomenclature / Switching One-Line Diagram -Any obvious deviations from diagrams provided?	☐	Nomenclature updates will be needed for the addition of the [redacted]
17	Any design alterations or considerations to Eliminate SCLL Conditions, Reduce Recall Time, Reduce Outage durations, Special Conditions	☐	TBD
F	**Protection & Controls**		
1	Panel Graphic additions and/or Modifications	☒	
2	Space on existing panels for new equipment? (front & rear of panel fronts)	☒	
3	Panel fronts conform to drawings	☒	
4	Access to bring new panels into control enclosure	☒	
5	Nameplate list and location of nameplates	☒	
6	Verifies that relays and meters that will be an interconnected project work are as shown on the drawings.	☒	

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Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
7	Verify auxiliary panels have breaker available or space for new breakers (if needed)	☒	
G	**Telecom Engineering**		
1	Review telecom equipment in existing control enclosure	☒	
2	Review path to get telecom circuits into the station and determine whether new underground duct bank is needed.	☒	
3	Review current or proposed Telecom equipment power connections and validate with P&C any need for system 1 and system 2 separation.	☒	
4	Review current Telecom fiber diversity and validate with P&C any fiber diversity requirements.	☒	
5	Confirm whether correct interface equipment is available (i.e.) for fiber termination or multiplexor termination	☒	
6	Confirm whether existing communications cabinets are enough to support additional telecommunications equipment installed	☒	
7	Review space for any required additional communications cabinets which may be required to support additional telecommunications equipment installed	☒	
8	Review third party Telecommunications at substation and confirm whether additional capacity or Ground Potential Rise protection is required	☒	

Photos

(Ex. Equipment control cabinet, Breakers, MODs, CCVTs, PTs, Transformers)

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Constructability Review Form: **Substation**

Photo 1 - Transformer [redacted]



[redacted]

Photo Group 2 - Station Service Transformer [redacted] Panel and CB



[redacted]

Photo 3 - Station Service Transformer (SST) [redacted]



Photo 4 – Transformer [redacted]



Photo 5 – [redacted]

[redacted]

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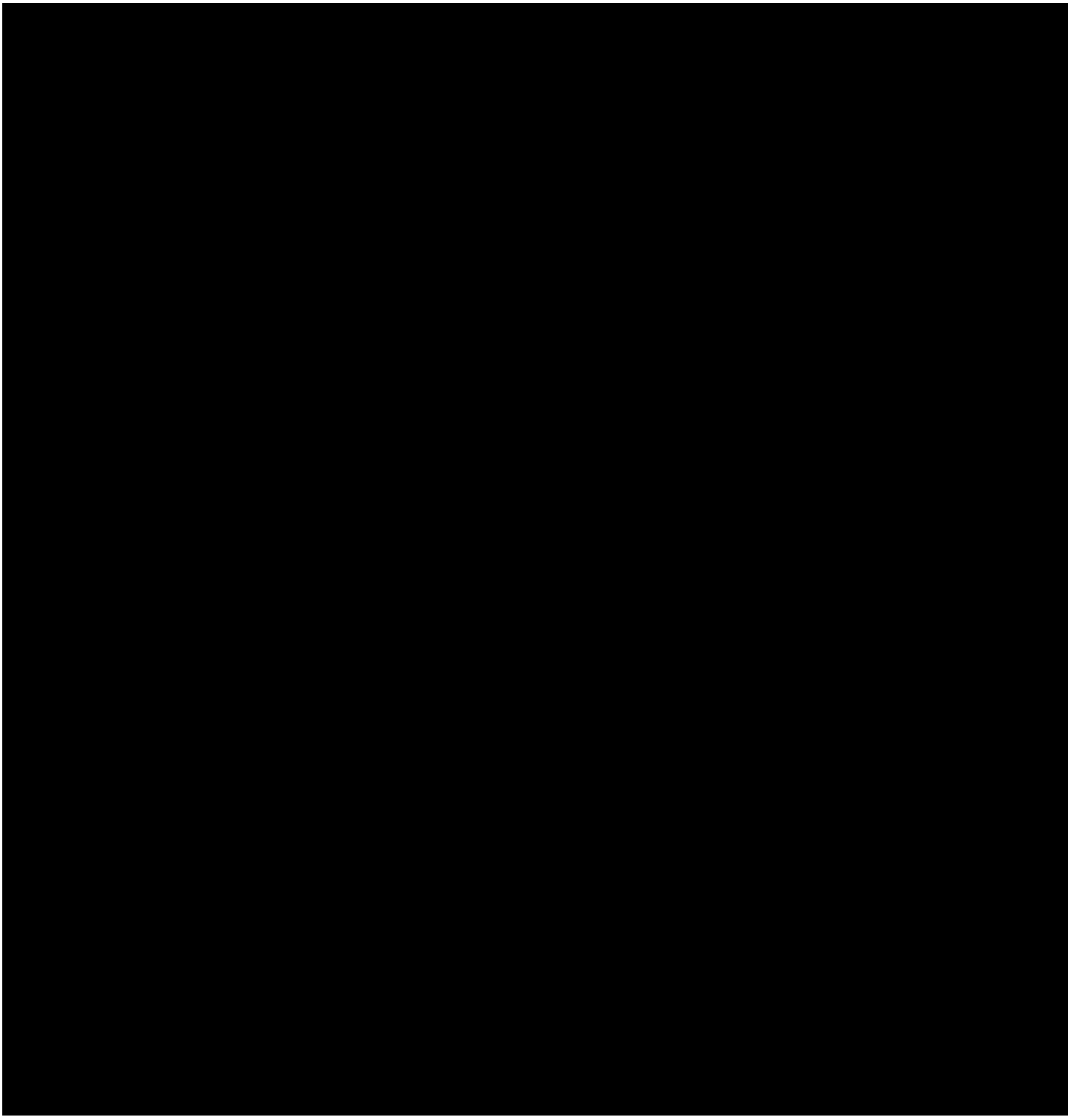
Constructability Review Form: **Substation**



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Constructability Review Form: **Substation**

Photo Group 7 - Station Service Transformer (SST) [redacted]





[redacted]

Photo Group 8 – [redacted]

[redacted]



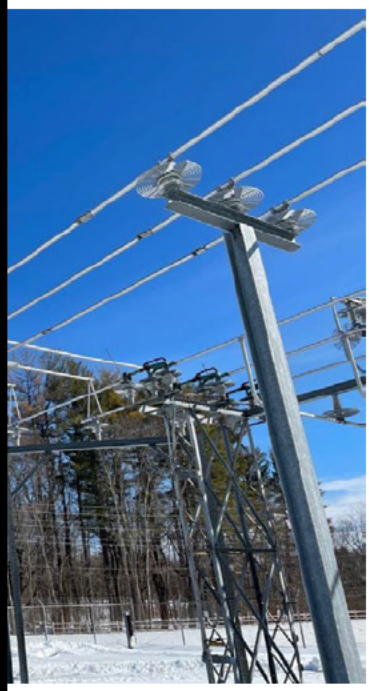
[redacted]

Photo Group 9 – [redacted]



Photo Group 8 – [redacted]

[redacted]



[redacted]

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Operations Program Level Project Authorization Form

Approved at May 26, 2021 EPAC

Link to Meeting Minutes

Date Prepared: 05/11/2021	**Program Title: CT OCB Replacement and Bus Rehabilitation Program**
Company: Eversource CT	**Project Number (by state): CS00411 (CT)**
Organization: Asset Management	**Class(es) of Plant:** D SS
Project Initiator: [redacted]	**Project Category:** Stations - Circuit Breakers
Project Manager: [redacted]	**Project Type:** Program
Project Sponsor: [redacted]	**Project Purpose:** Replace Contaminated Circuit Breakers and Bus Rehab
Estimated in service date: Q4 2024	**If Transmission Project: PTF/Non-PTF?** See associated Program Release Forms
Eng. / Constr. Resources Budgeted? See associated Program Release Forms	**Capital Investment Part of Original Operating Plan?** See associated Program Release Forms
Authorization Type: Program Approval	**O&M Expenses Part of the Original Operating Plan?** See associated Program Release Forms
Initial Funding Request: N/A	**Estimated Program Value (by State): CT $32.185M** **CT Projected unit cost: $670.5K Unit cost/breaker**

Financial Requirements:

Project Authorization

ERM: _____

FP&A: _____

Executive Summary

This program is requesting program approval of the CT Oil Circuit Breaker (OCB) Replacement and Bus Rehabilitation Program and identifies for information only, projected unit costs. This program proposes to replace up to 48 OCBs at 11 substations in CT now through 2024. Dollar authorization for these costs shall be through submission of individual program releases. Program Release Form submissions shall occur in accordance with the locations and phases identified in this document. "Project Checklist – Transmission & Substation" will be submitted with each Program Release Form.

An initial funding request for the OCB Replacement and Bus Rehabilitation Program for Connecticut was approved on November 23, 2020 for $300K. The initial funding was requested to allow engineering to complete an analysis, design, and estimate of what will be required for the replacement of OCBs and bus rehabilitation. An additional funding request was sent on April 1, 2021 to increase the total initial funding to $450K to allow additional engineering to be included in the program activities. As of May 20, 2021, $256.6K has been spent in development of this program and has completed ten constructability walkdowns and scope definitions and has completed three estimates.

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Financial Unit Cost Evaluation (by State)

Note: Dollar values are in thousands and are unit level costs for Program PAFs

Line item Category	Year 1	Year 2	Year 3+	Total
1. ROW / Easements / Land Acquisition				
2. Environmental Approvals / Permits				
3. Outreach	$1			$1
4. Siting Approvals / Permits				
5. Engineering / Design	$7			$7
6. Materials (Eversource purchased)	$89			$89
7. Construction (incl matl's by contractors)	$157			$157
8. Testing / Commissioning	$86			$86
9. Project Mgmt Team	$3			$3
10. Removals	$10			$10
11. Other				
12. Risks *	$53			$53
SUBTOTAL DIRECTS W/ RISKS	**$406**			**$406**
13. Indirects/Overhead	$195			$195
14. AFUDC	$36			$36
PROJECT TOTAL – BASELINE BUDGET	**$637**			**$637**
15. Contingency	$33			$33
TOTAL CAPITAL REQUEST	**$671**			**$671**
16. Reimbursables/Customer Contribution				
PROJECT TOTAL (LESS REIMBURSABLES)	**$671**			**$671**
O&M				
Total Request	**$671**			**$671**

* *See the* Risks and Risk Mitigation Plans section below for the cost breakdown of the risks.

Unit Breakout Costs (by state)

Note: Dollar values are in thousands

Line item Category	Year 1	Year 2	Year 3+	Total
ST Labor	$10			$10
OT Labor				
Outside Services Labor	$244			$244
Materials*	$89			$89
Removals	$10			$10
Other	$86			$86
Indirects	$195			$195
AFUDC	$36			$36
TOTAL REQUEST	**$671**			**$671**

*All materials including Eversource purchased and outside service purchased. Note that outside service purchased material included in construction in unit cost evaluation above.

Future Financial Impacts:

Provide below the estimated future costs that will result from the project: N/A
Note: Dollar values are in thousands:

Future Costs	Year 20__	Year 20__	Year20__	Year 20__+	Total Future Project Costs
Capital	$ -	$ -	$ -	$ -	$ -
O&M	-	-	-	-	-
Other	-	-	-	-	-
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Describe the estimated future Capital, O&M and/or Other costs noted above:

What functional area(s) will these future costs be funded in?_____N/A_____
A representative from the respective functional area is required to be included as a project approver.

If this is other than a Reliability Project, please complete the section below;

Provide below the estimated financial benefits that will result from the project:
Note: Dollar values are in thousands:

Future Benefits	Year 20__	Year 20__	Year20__	Year 20__+	Total Future Project Benefits
Capital	$ -	$ -	$ -	$ -	$ -
O&M	-	-	-	-	-
Other	-	-	-	-	-
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Describe the estimated future Capital, O&M and/or Other benefits noted above:

What functional area(s) will these benefits be reflected in?_____N/A_____
A representative from the respective functional area is required to be included as a project approver.

Asset Retirement Obligation (ARO) and/ or Environmental Cleanup Costs (Environmental Liabilities):

Is there an ARO associated with this project? If yes, please provide details: No

Are there other environmental cleanup costs associated with this project? If yes, please provide details: No

Technical Justification:

Project Need Statement

[redacted]

Project Objectives

[redacted]

Initial funding allows engineering to complete an analysis, design, and estimate of what will be required for the replacement of OCBs and bus rehabilitation for Connecticut projects starting in 2021. Based on the initial walkdowns and subsequent analysis, Substation Technical Engineering, Substation Engineering and Design, Protection and Controls Engineering, Asset Management, and Project Management will develop a scope for each site.

Program Scope

This program proposes to replace up to 48 OCBs at 11 substations in CT now through 2024 as [redacted]. A preliminary summary of the equipment for each release is shown in Table 1. Marked up nomenclature drawings identifying the release equipment is provided in the Attachment 1.

Table 1 Release Equipment Summary:

Substation	Release Number	OCB	Hook Stick	Reactor	Manual Sw	Surge arrestors	move Grd Switch
[redacted]							

Background / Justification

The equipment replacements are needed to enhance the reliability and availability of the [redacted]

[redacted]

[redacted]

[redacted]

Business Process and / or Technical Improvements:

The equipment improvements to the substation yards will look to minimize future exposure to [redacted]

[redacted]

Alternatives Considered with Cost Estimates

Alternative 1. Replace OCBs and bus equipment (chosen alternative).

[redacted] equipment. See Attachment A for the alternative 1 Cost Estimate.

Alternative 2. Replace OCB PCB bushings and leave breakers in place

[redacted] cost for this alternative could be as high as $40 to $50K per breaker. No true conceptual cost estimate for this alternative was done as this alternative does not address the PURA initiative nor the aging bus equipment and was not chosen.

Alternative 3. Replace OCB PCB bushings and leave breakers in place

[redacted] nd will be determined when reviewing the scope for each release. No cost estimate has been provided for this alternative.

Alternative 4. Do Nothing

[redacted] No true conceptual cost estimate for this alternative was done as this alternative does not address the PURA initiative nor the aging bus equipment and was not chosen.

Project Schedule

Program Schedule Milestone/Phase Name	Estimated Completion Date
Begin Program Execution	Q1 2021
Preliminary scope developed	Q2 2021
Program Level PAF and first Project Releases presented to EPAC	Q2 2021
Complete Program	Q4 2024

Release Schedule Milestone/Phase Name			
Substation	**Release Number**	**Full Funding EPAC Mtg Target**	**Scheduled Construction Target**
[redacted]			
Totals			

Regulatory Approvals

Not applicable

Risks and Risk Mitigation Plans

The risks associated with the work identified in the release to replace equipment will be identified and evaluated in the individual release documentation.

	Risk	Funded Amount	Assessment and Mitigation
1.	Breaker control cables are found to be damaged.	$5K	Perform continuity checks on control cables and install new control breaker cables if required.
2.	Underground conduit damaged.	$5K	Check for conduit damage and replace Underground Conduit if required.
3.	Delays / outages related to breaker energization plans.	$25K	Reschedule and provide overtime as required.
4.	Design development Risks.	$6.4K	Add Allowances for Re-Design
5.	Severe Weather, Delays, OT.	$6.4K	Reschedule and provide overtime as required.
6.	Existing foundations not suitable for re-use.	$5K	Replace foundations as required

Contingency

Contingency is included in the estimates to cover possible cost deviations for unknown conditions that may arise during the project. See Individual Program releases.

References

CL&P 2014 Operating Initiatives - Docket No.14-05-06 PURA-03 Dated 06/20/2014

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

Attachment A: Unitized Cost Estimate Backup Details
Attachment B: OCB Releases Nomenclature Diagrams

Cost Estimate Backup Details

Attachment A: Unitized Cost Estimate Backup Details