EVERSOURCE

Operations Project Authorization Form

Approved on July 20, 2023 EPAC

Link to Meeting Minutes

Project Title: [redacted] **MOD Replacements**	**Project Number: CS00584**
Date Prepared: 07/10/2023	**Company: Eversource CT**
Organization: Asset Management	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - Switches**
Managing Organization: Transmission / Major Projects	**Schedule ID#: 80246574**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Estimated in service date: April 2024	**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: $1,290K	**Authorization Type: Full Funding**

[1] Executive Summary

This project is seeking full funding authorization in the amount of $1,290K to replace the [redacted] 115kV motor operated disconnects (MODs) located at the [redacted], CT.

The primary driver of the project is the replacement of two (2) of the three (3) transformer high side MODs in the substation. All three (3) high side MODs were installed in the early 1970s and are at the end of their useful service lives. [redacted]

Initial funding of $125K for this project was approved in PowerPlan on April 27, 2022. As of April 2023, approximately $72.5K has been spent to complete Conceptual and Preliminary Engineering, the constructability review and walkdown, and finalization of the scope, project details, and cost estimates. The requested $1,290K will allow the project to complete engineering, procure materials, construction, and, testing and commissioning. This project will

no longer be coordinated with the CS00461/40529 relay projects as stated in the IFR as these have already been completed.

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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	Total Request
1. ROW / Easements / Land Acquisition						
2. Environmental Approvals / Permits						
3. Outreach						
4. Siting Approvals / Permits						
5. Engineering / Design		$44	$16	$7		$67
6. Materials (Eversource purchased)			$19	$20		$40
7. Construction (incl materials by contractors)			$171	$186		$357
8. Testing / Commissioning			$86	$90		$176
9. Project Mgmt. Team		$4	$16	$12		$31
10. Removals		$3		$46		$49
11. Other						
12. Risks			$89	$87		$176
SUBTOTAL DIRECTS W/ RISKS	**$125**	**$52**	**$397**	**$448**		**$897**
13. Indirects/Overhead		$35	$139	$147		$322
14. AFUDC		$1	$23	$15		$40
PROJECT TOTAL – BASELINE BUDGET	**$125**	**$88**	**$560**	**$611**		**$1,259**
15. Contingency			$15	$17		$32
TOTAL CAPITAL REQUEST	**$125**	**$88**	**$574**	**$627**		**$1,290**
16. Reimbursables/Customer Contribution						
PROJECT TOTAL (LESS REIMBURSABLES)	**$125**	**$88**	**$574**	**$627**		**$1,290**
O&M						
TOTAL REQUEST	**$125***	**$88**	**$574**	**$627**		**$1,290**

The Full Funding Estimate is included as Attachment A.

Detail other costs, project risk items and their allocations:

Risk	Allocation
1. Potential UG Obstructions	$18,000
2. Existing Conduit Conditions	$18,000
3. Contaminated Soils	$20,000
4. Material cost escalation - Delivery Delays	$20,000
5. Mobile Transformer Service	$100,000
Total	$176,000

Explain unique payment provisions, if applicable:

Current lead time for Disconnect Switches is 26-28 weeks. The disconnects were ordered on under the material exemption form referenced below.

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

[3] TECHNICAL JUSTIFICATION

Project Need, Objective and Justification

The [redacted] MODs were installed in the early 1970s and are at the end of their useful service lives.

The project objective is to ensure system reliability and operator safety by replacing two (2) MODs that are at the end of their useful service lives with the Eversource standard MOD. Utilizing standard equipment will simplify installation and ensure field personnel are familiar with its operation.

[redacted]

Project Scope

The scope of work at [redacted] includes the following:

[redacted]

A constructability review was performed on 05/24/2023. See Attachment C for the completed form. The [redacted] foundations were found to be in poor condition and undersized for the new MODs. Replacement of both foundations has been included in the project scope. See Attachment D for Station One-line. Current outage for the first MOD is scheduled for 10/30-12/7 (TOA 23-02281). Outage for the second MOD will be scheduled for early 2024.

Substation Equipment

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

Background

[redacted] has been replaced under emergent Work Order 80222503.

[redacted]

[4] ALTERNATIVES CONSIDERED

There were no alternatives considered as the switch [redacted] MOD had to be replaced and these are the same age and type. The standard Eversource Southern States EV switch for this application was installed.

[5] PROJECT SCHEDULE

Milestone	Scheduled Completion Date
IFR Approval	April 2022
SDC Approval (for applicable projects)	N/A
Conversion of Tx development costs, 183 to 107 (applicable to projects that require SSF approval and/or ISO preferred alternative selection)	N/A
EPAC Partial Funding Approval (for applicable projects)	N/A
Preliminary Design Completion (or latest pre-full funding design phase)	April 2023
EPAC Full Funding Approval	July 2023
Siting Approval (for applicable projects)	N/A
Start of Construction	January 2024
Project In-Service Date (ISD)	April 2024
Project Need Date (for applicable projects)	N/A
ISO Related Milestones: (for applicable projects)	
• ISO Preferred Alternative Selected	N/A
• PAC Presentation	N/A
• TCA Submittal	N/A

The P6 schedule is included as Attachment B.

[6] Regulatory Approvals

N/A

[7] Risk and Risk Mitigation Plans

Contingency:

Contingency of $32K is included in the estimate for project unknowns.

Risk Mitigation:

Risk	Mitigation
1. Potential UG Obstructions	Risk allocation is included for additional work to re-route trenching for potential UG conflicts and unknowns. Precautions will be taken to hand dig when required while observing mark-outs.
2. Existing Conduit Conditions	To mitigate this risk, risk allocation is included for increased material cost and work that may require replacement of the conduit risers.
3. Contaminated Soils	Risk allocation is included for soil testing and disposal resulting from unforeseen, unsuitable soil conditions. To mitigate this risk, soil samples will be taken and tested.
4. Material cost escalation - Delivery Delays	To mitigate this risk, risk allocation is included for increased cost and work that may require overtime for schedule recovery.
5. Mobile Transformer Service	Risk is allocated in the event of SCLL during the 12A-3X1-4 work outage and a mobile is needed. The team will continue to work with Station Ops and Engineering leading up to work start.
6. SCLL	The project team has met with Station Ops, Substation Tech, and Engineering to ensure loading during outages is acceptable. Additional risk dollars have been included in the event a mobile and additional switching is needed. The project team will continue to communicate with Ops and the SCLL team as the scheduled outages get closer to ensure no additional impact to system reliability.

[8] REFERENCES

References
[redacted] MOD Replacement IFR – Approved 04/20/2022
2. CS00584 - [redacted] MOD Replacement - Material Order Authorization, dated 02/01/2023
3.
4.
5.

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

Attachment	Included in Submittal?
A. Cost Estimate Rev2	*YES*
B. P6 Schedule	*YES*
C. Constructability Review	*YES*
D. System and Station One-Lines	*YES*

Project Checklist - Transmission & Substation Capital Project			
Project Name: [redacted] **MOD Replacements**		**Project Number: CS00584**	
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?	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?	No		
Is a Transient Over Voltage (TOV) analysis required?	No		

Project Checklist - Transmission & Substation Capital Project	
Project Name: [redacted] MOD Replacements	**Project Number: CS00584**
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?	No
Name of Siting contact:	N/A
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	
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

ESTIMATE SUMMARY

Project Title: Switch Replacement - Forestville 12A
Project Mgr/Lead: [redacted]
Project Number: CS00584
WO & Task #: 80246574
Estimate revision #: 02
Estimate Type - Station work

Estimate #: C-23-276
Date of Estimate 06/20/2023
Estimate done by: [redacted]
In Service date [redacted]

Template Revision # 01.00

Alt Estimate Summary for PP4 Calc (escalation separate)

Estimate # C-23-276
Date of Estimate 06/20/2023

Project Number: CS00584
WO & Task # 80246574

ESTIMATE SUMMARY

Estimate Type: Planning

WBS	Description	TOTAL	% of Directs	% of Total	Priors	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	TOTAL w/ escal broken out
1	ROW / Easements / Land purchases															$ -
2	Environmental Approvals / Permits															$ -
3	Outreach															$ -
4	Siting Approvals / Permits															$ -
5	Engineering / Design	$67 100	7.5%	5.2%	$44 400	$16 100	$6 600									$ 66 800
6	Materials (Eversource purchased)	$39,600	4.4%	3.1%		$19,500	$20,100									$ 81,251
7	Construction (Incl materials by contractors)	$356,600	39.8%	27.6%	$100	$170,700	$185,800									$ 305,949
8	Testing / Commissioning	$176,200	19.6%	13.7%		$86,000	$90,200									$ 171,900
9	PMT Project Mgmt Team	$31,500	3.5%	2.4%	$3,600	$16,200	$11,700									$ 30,900
10	Removals	$49 300	5.5%	3.8%	$2 900		$46 400									$ 48 000
11	Other (property taxes and BAR)	$500	0.1%	0.0%	$500											$ 500
12	Risks	$176,000	19.6%	13.6%		$89,000	$87,000									$ 176,000
135																
	Project Directs Total w/Risks	**$896,800**	100.0%	69.5%	**$51,500**	**$397,500**	**$447,800**									**$881,300**
13	Indirects/Overhead	$321 700		24.9%	$35 400	$139 000	$147 300									$ 314 700
14	AFUDC	$40,000		3.1%	$1,400	$23,200	$15,400									$ 40,000
135																$ -
	Project Total - Baseline Budget	**$1,258,500**		97.6%	**$88,300**	**$559,700**	**$610,500**									**$1,236,000**
																$ -
15	Contingency	$31,600		2.4%		$14,900	$16,700									$ 31,600
	Project Total - Funding Approval Level	**$1,290,100**		100.0%	**$88,300**	**$574,600**	**$627,200**									**$1,267,600**
16	Reimbursables/Customer Contribution															$ -
17																$ -
	Project Total (less reimbursables)	**$1,290,100**			**$88,300**	**$574,600**	**$627,200**									**$1,267,600**
	Cost per key qty (if appl)	645,050	$'s / EA 115kV Switch Replacement													
	Amount of Escalation included above	$22,600					$22,600									$ 22,600
4	Total materials - Eversource	$39,600				$19,500	$20,100									
	Total materials - Contractor	$45,900				$22,600	$23,300									
	Total materials	$85 500				$42 100	$43 400									

NOTE: Risk / Contingency is 19.2% of Project Total Costs (Incl escal/Indirects/AFUDC but excl reimb.)

	Estimate Range	-25%			25%											
		$968,000			**$1,613,000**											

Excel total $ 1,290,200
Check total $ 100

COMMENTS

Project Scope:
Key qty's and UOM (tie to inputs: 2 EA 115kV Switch Replacement — 32.58 Factor (total $/Eversource Mat'l $'s)

Factor (Total directs $/Total Eversource mat'l $'s)

[redacted]

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

Engineering & Project Management Inhouse/Outsourced combination
Electrical Contruction & Contruction Rep Inhouse
Civil Construction Outsourced
Testing and LCE Outsourced
ISD 4/29/2024 Per PE Schedule dated 8/18/2023

RISKS

Potential UG Obstructions	$ 18,000
Existing Conduit Conditions	$ 18,000
Contaminated Soils	$ 20,000
Material cost escalation - Delivery Delays	$ 20,000
Mobile Transformer Service	$ 100,000

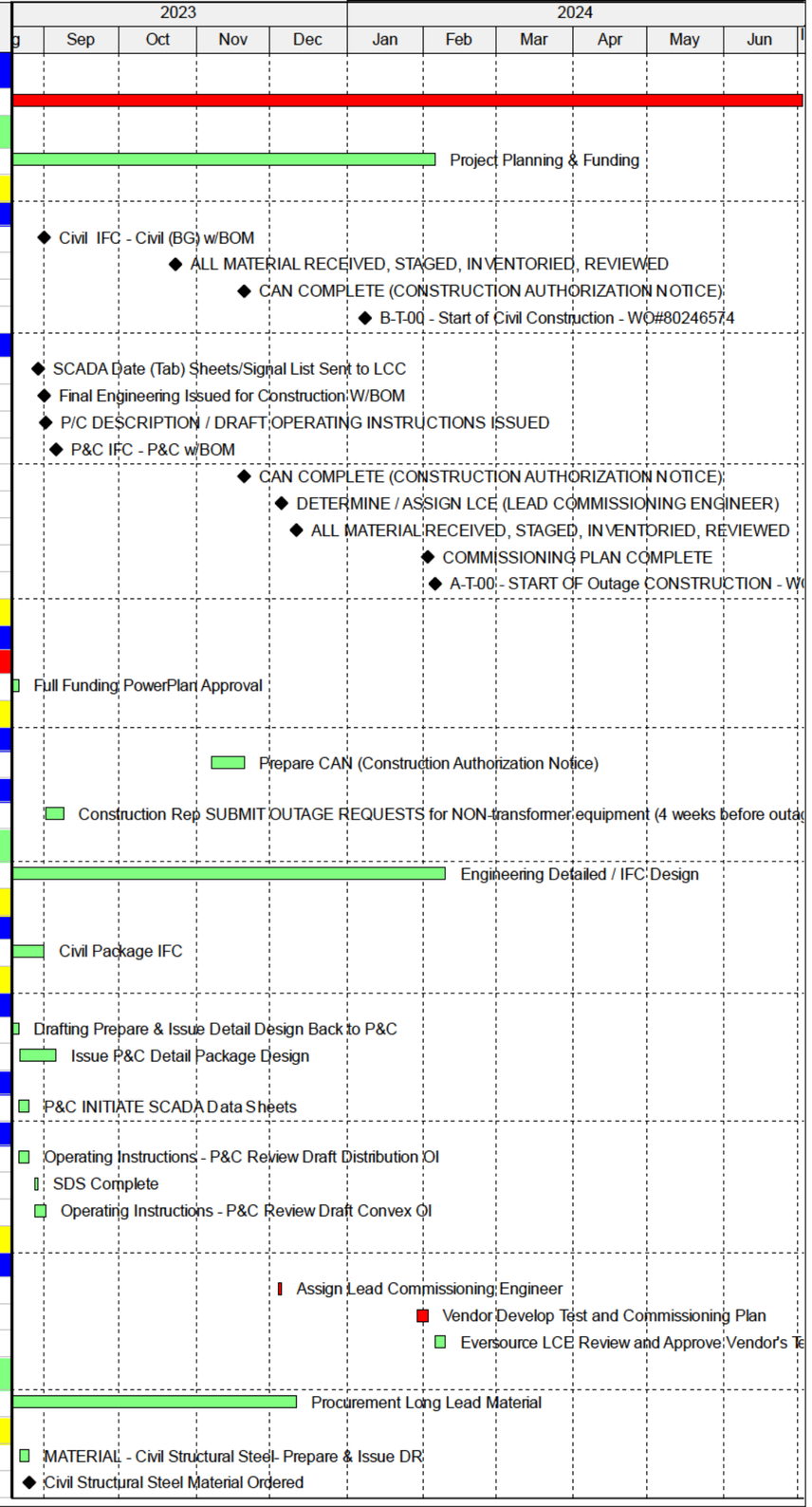
UNESCALATED LINE ITEM DOLLARS

Project Number CS00584
Date of Estimate 06/20/2023
Estimate revision # 02

Escalation Rate — E Rate $ 57 — 1 — 2

CSTXX-CONSTRUCTION	R	Prior Mhrs	Prior DOLLARS	2023 Mhrs	2023 DOLLARS	2024 Mhrs	2024 DOLLARS	2025 Mhrs	2025 DOLLARS	TOTAL Mhrs	TOTAL DOLLARS
Electrical Construction	LT										
Cleared Construction	LT $		$114								$114
SCADA / Automation	LT $				$2,164		$2,164				$4,328
Other (specify)	LT $										
Construction Regs (internal)	LT $										
Support Switch/Tag	LT $				$6,503		$12,606				$19,109
Other (specify)	LT $										
Other (specify)	LT $										
Other (specify)	LT $										
LT Total			$114		$8,467		$14,770				$23,351
Employee Expenses	AE				$423		$739				$1,162
Constr. Purchased Matl (Eversource)	AM										
Constr. Purchased Matl (contracted)	AM				$696		$696				$1,392
Outside Construction Vendor	AQ				$139,202		$139,202				$278,404
Sales tax on Constr. Vendor											
Vehicles (now in Indirects section)	AV										
Inspection services (Outside Vendor)	AQ										
Construction Reg (Outside vendor)	AQ										
Rents and Leases	BR										
CSTXX Subtotal			$114		$148,788		$155,407				$304,309
Escalation											
CSTXX Total			$114		$148,788		$155,407				$304,309
ENRXX-TG ENGINEER/DESIGN											
Project Services/Drafting	LT				$1,996		$1,996				$3,992
T- Line Engineering/Design	LT										
D- Street Engineering/Design	LT										
Civil Engineering/Design	LT				$3,992		$3,992				$7,984
Substation (T) Engineering/Design	LT										
Substation (D) Engineering/Design	LT		$22,191								$22,191
Protection & Controls Engineering	LT				$9,344						$9,344
Survey Engineering	LT										
SCADA / Automation Engineering	LT										
Telecom Engineering	LT										
Other - PE Support	LT										
Other - specify	LT $ -										
LT Total			$22,191		$15,332		$5,988				$43,511
Employee Expenses	AE				$767		$299				$1,066
Contractor Engineering - T-Lines	AQ										
Contractor Engineering - D-Street	AQ										
Contractor Engineering - T -Station	AQ										
Contractor Engineering - D-Station	AQ		$22,191								$22,191
Contractor Engineering - P&C	AQ										
Contractor Engineering - Survey	AQ										
Contractor Engineering - SCADA / Automation	AQ										
Contractor Engineering - Telecom	AQ										
Contractor Engineering - Specify	AQ										
Contractor Engineering - Specify	AQ										
Contractor Engineering - Specify	AQ										
Vehicles (now in Indirects section)	AV										
ENRXX Subtotal			$44,382		$16,099		$6,287				$66,768
Escalation											
ENRXX Total			$44,382		$16,099		$6,287				$66,768
LNDXX-TG LAND											
Real Estate	LT										
Employee Expenses	AE										
Purchase Land	AM										
Easements	AM										
Vehicles (now in Indirects section)	AV										
Fees and Payments	BF										
LNDXX Subtotal											
Escalation											
LNDXX Total											
MATXX-TG MATERIAL											
Outsource	AM				$18,796		$18,796				$37,592
Outside Services	AM				$21,128		$21,128				$42,251
Freight	AM										
Sales Tax (Eversouce)	3.9%				$700		$700				$1,400
Sales Tax (outside services)	3.9%				$800		$800				$1,600
Other											
MATXX Subtotal					$41,424		$41,424				$82,847
Escalation											
MATXX Total					$41,424		$41,424				$82,847
PSMXX-PROJECT MANAGER & SUPPORT											
Project Management (PM)	LT $		$338		$2,698		$2,698				$5,734
Project Planning/Cost (IP)	LT $				$611		$611				$1,222
Contracts/Purchasing (CIP)	LT $										
System Planning	LT $										
Environmental	LT										
SCS - None	LT										
Legal	LT $										
Estimating	LT $				$2,440						$2,440
Siting - None	LT		$34								$34
Asset Management	LT $				$2,336						$2,336
Veg. Mgmt	LT $										
Other -	LT $										
Other -	LT $ -										
Other -	LT $ -										
LT Total			$372		$8,085		$3,309				$11,766
Employee Expenses	AE				$404		$185				$589
Project Support Vendor - PM	AQ		$3,258		$7,680		$7,680				$18,618
Project Support Vendor - IP	AQ										
Project Support Vendor - CIP	AQ										
Project Support Vendor - System Planning	AQ										
Project Support Vendor - Environental	AQ										
Project Support Vendor - SCS - None	AQ										
Project Support Vendor - Legal	AQ										
Project Support Vendor - Estimation	AQ										
Project Support Vendor - Siting - None	AQ										
Project Support Vendor - Asset Management	AQ										
Project Support Vendor - Veg. Mgmt.	AQ										
Project Support Vendor - Other	AQ										
Project Support Vendor - Other	AQ										
Project Support Vendor - Other	AQ										
Vehicles (now in Indirects section)	AV										
Property or CWIP tax (large proj. allowance	BR										
Builder All risk insurance excluding deductibles(if project is over $50m	BR										
Fees and Payments - Environental	BF										
Fees and Payments - Siting	BF										
Fees and Payments - Other	BF										
PSMXX Subtotal			$3,630		$10,169		$11,154				$30,953
Escalation											
PSMXX Total			$3,630		$10,169		$11,154				$30,953
REMXX-TG REMOVAL											
Engineering/Design	LT										
Internal Construction	LT		$2,520								$2,520
LT Total			$2,520								$2,520
Employee Expenses	AE										
Outside Services	AQ										
Contractor Labor	AQ		$417				$45,036				$45,453
Vehicles (now in Indirects section)	AV										
Rents and Leases	BR										
REMXX Subtotal			$2,937				$45,036				$47,973
Escalation											
Journal Entry Adjustments			$496								$496
REMXX Total			$3,433				$45,036				$48,469
TSTXX-TG TEST											
Test / Field Engr. Labor (In House)	LT										
Test / Comm. Engr. Labor (In House)	LT										
Lead Commissioning Engr. (LCE) (Internal)	LT										
Employee Expense	AE										
Test / Field Engr. Labor (contractor)	AQ				$57,300		$57,300				$114,600
Test / Comm. Engr. Labor (contractor)	AQ				$28,650		$28,650				$57,300
Lead Commissioning Engr. (LCE) (contractor)	AQ										
Vehicles (now in Indirects section)	AV										
TSTXX Subtotal					$85,950		$85,950				$171,900
Escalation											
TSTXX Total					$85,950		$85,950				$171,900
SUBTOTAL PROJECT DIRECT COST		-	$61,869		$308,430		$346,288				$796,346
Risk											
Risk					$89,000		$87,000				$176,000
					$ -		$ -		$ -		
					$ -		$ -		$ -		
Risk Total					$89,000		$87,000				$176,000
TOTAL PROJECT DIRECT COST (w/risk)		-	$61,869		$397,430		$433,288				$891,346
INDIRECTS											
Non-Productive Time Allocation (ZNP)	17.0%		$4,301		$5,420		$4,091				$13,812
Payroll Benefits Allocation (ZPB) Incl NPT	44.0%				$12,282		$10,586				$22,868
Gen SVC OD Overhead (ZGS) Incl NPT	80.0%		$19,850		$7,596		$3,067				$30,315
E&S Allocations (ZEB,ZEL,ZES)	28.0%		$8,317		$91,108		$89,547				$179,052
AG&E Allocations (ZAS)	1.3%		$523		$5,168		$5,658				$11,347
Stores Expense Allocation (ZST)	8.0%				$1,504		$1,504				$3,008
Lobby Stock											
MDEC (ZMI)	6.0%		$2,175		$10,943		$19,003				$30,121
Vehicles (ZVE)	28.0%		$304		$8,928		$6,759				$16,991
Indirects Subtotal			$35,360		$138,949		$140,335				$314,674
TOTAL PROJECT COST - Direct & Indirect (excl AFUDC)			$98,919		$536,419		$573,883				$1,196,939
AFUDC											
AFUDC (ZIC)			$1,436	6.50%	$23,177	6.50%	$15,423	6.50%			$40,036
In Service Dollars / Land costs					-		-				
Cumulative ISS & Land Costs											
AFUDC Subtotal			$1,436		$23,177		$15,423				$40,036
TOTAL PROJECT COST - Baseline Budget			$98,355		$559,596		$589,306				$1,236,976
Contingency		-									
Contingency		-			$14,850		$16,747				$31,597
Other		-	$ -		$ -		$ -		$ -		
Contingency SubTotal					$14,850		$16,747				$31,597
TOTAL PROJECT COST - Approved Funding			$98,355		$574,446		$604,793				$1,267,683

Activity ID	Activity Name	Original Duration	Start	Finish	Remaining Duration	Variance - BL1 Duration	Critical
[redacted] MOD Replacement (CS00584, WO#80246574)		461	01-Oct-22 A	02-Jul-24	224	21	
PT1000	Project Timeline	461	01-Oct-22 A	02-Jul-24	224	21	☑
PROJECT PLANNING & FUNDING		356	01-Oct-22 A	05-Feb-24	119	21	
PPF1000	Project Planning & Funding	356	01-Oct-22 A	05-Feb-24	119	21	☐
T-Minus Milestones		107	29-Aug-23	05-Feb-24	107	0	
Civil T-Minus Milestones		129	31-Aug-23	08-Jan-24	129	0	
BT0805C	Civil IFC - Civil (BG) w/BOM	0		31-Aug-23	0	0	☐
BT0401	ALL MATERIAL RECEIVED, STAGED, INVENTORIED, REVIEWED	0		23-Oct-23	0	0	☐
BT0203	CAN COMPLETE (CONSTRUCTION AUTHORIZATION NOTICE)	0		20-Nov-23	0	0	☐
BT00	B-T-00 - Start of Civil Construction - WO#80246574	0	08-Jan-24*		0	0	☑
Electrical T-Milestones		107	29-Aug-23	05-Feb-24	107	0	
AT1201	SCADA Date (Tab) Sheets/Signal List Sent to LCC	0		29-Aug-23	0	0	☐
AT0805	Final Engineering Issued for Construction W/BOM	0		31-Aug-23	0	0	☐
AT1202	P/C DESCRIPTION / DRAFT OPERATING INSTRUCTIONS ISSUED	0		01-Sep-23	0	0	☐
AT0805P	P&C IFC - P&C w/BOM	0		05-Sep-23	0	0	☐
AT0203	CAN COMPLETE (CONSTRUCTION AUTHORIZATION NOTICE)	0		20-Nov-23	0	0	☐
AT2404	DETERMINE / ASSIGN LCE (LEAD COMMISSIONING ENGINEER)	0		05-Dec-23	0	0	☐
AT0401	ALL MATERIAL RECEIVED, STAGED, INVENTORIED, REVIEWED	0		11-Dec-23	0	0	☐
AT1301	COMMISSIONING PLAN COMPLETE	0		02-Feb-24	0	0	☐
AT00	A-T-00 - START OF Outage CONSTRUCTION - WO#80246574	0	05-Feb-24*		0	0	☑
Project Funding		5	17-Jul-23 A	21-Aug-23	6	-21	
Full Funding		5	17-Jul-23 A	21-Aug-23	6	-21	
Power Plan - FF		5	17-Jul-23 A	21-Aug-23	6	-21	
FF1010	Full Funding PowerPlan Approval	5	17-Jul-23 A	21-Aug-23	6	-21	☐
Project Management		55	01-Sep-23	20-Nov-23	55	0	
Compliance Authorization Notification		10	07-Nov-23	20-Nov-23	10	0	
A1170	Prepare CAN (Construction Authorization Notice)	10	07-Nov-23	20-Nov-23	10	0	☐
Outage Permits / TOAs Request		5	01-Sep-23	08-Sep-23	5	0	
A1250	Construction Rep SUBMIT OUTAGE REQUESTS for NON-transformer e	5	01-Sep-23	08-Sep-23	5	0	☐
ENGINEERING DETAILED / IFC DESIGN		168	09-Jun-23 A	09-Feb-24	124	-1	
ENG1000	Engineering Detailed / IFC Design	168	09-Jun-23 A	09-Feb-24	124	-1	☐
Civil Engineering		29	07-Aug-23 A	31-Aug-23	14	10	
Civil Engineering IFC Design		29	07-Aug-23 A	31-Aug-23	14	10	
DSSE-120	Civil Package IFC	29	07-Aug-23 A	31-Aug-23	14	10	☐
P&C Engineering		55	19-Jun-23 A	05-Sep-23	16	0	
P&C Engineering Detailed Design		55	19-Jun-23 A	05-Sep-23	16	0	
DSSE-410	Drafting Prepare & Issue Detail Design Back to P&C	10	19-Jun-23 A	21-Aug-23	6	-35	☐
A3380	Issue P&C Detail Package Design	10	22-Aug-23	05-Sep-23	10	0	☐
P&C SCADA		5	21-Aug-23	25-Aug-23	5	0	
DSSE-990	P&C INITIATE SCADA Data Sheets	5	21-Aug-23*	25-Aug-23	5	0	☐
P&C Engineering IFC Design		10	21-Aug-23	01-Sep-23	10	0	
DSSE-470	Operating Instructions - P&C Review Draft Distribution OI	5	21-Aug-23*	25-Aug-23	5	0	☐
DSSE-220	SDS Complete	2	28-Aug-23	29-Aug-23	2	0	☐
DSSE-930	Operating Instructions - P&C Review Draft Convex OI	5	28-Aug-23	01-Sep-23	5	0	☐
Lead Commissioning Engineer		47	04-Dec-23	09-Feb-24	47	0	
LCE Commissioning Plan		47	04-Dec-23	09-Feb-24	47	0	
LCE200	Assign Lead Commissioning Engineer	2	04-Dec-23*	05-Dec-23	2	0	☑
LCE400	Vendor Develop Test and Commissioning Plan	5	29-Jan-24	02-Feb-24	5	0	☑
LCE500	Eversource LCE Review and Approve Vendor's Test and Commissioning	5	05-Feb-24	09-Feb-24	5	0	☐
PROCUREMENT LONG LEAD MATERIAL		208	15-Feb-23 A	11-Dec-23	83	0	
PLLM1000	Procurement Long Lead Material	208	15-Feb-23 A	11-Dec-23	83	0	☐
Civil Long Lead Material		77	22-Aug-23	11-Dec-23	77	0	
DSSE-1230	MATERIAL - Civil Structural Steel- Prepare & Issue DR	4	22-Aug-23	25-Aug-23	4	0	☐
DSSE-1240	Civil Structural Steel Material Ordered	0		25-Aug-23	0	0	☐



Remaining Level of Effort | Actual Work | Critical Remaining Work
Actual Level of Effort | Remaining Work | Milestone

TASK filter: WBS - RB - <100%.

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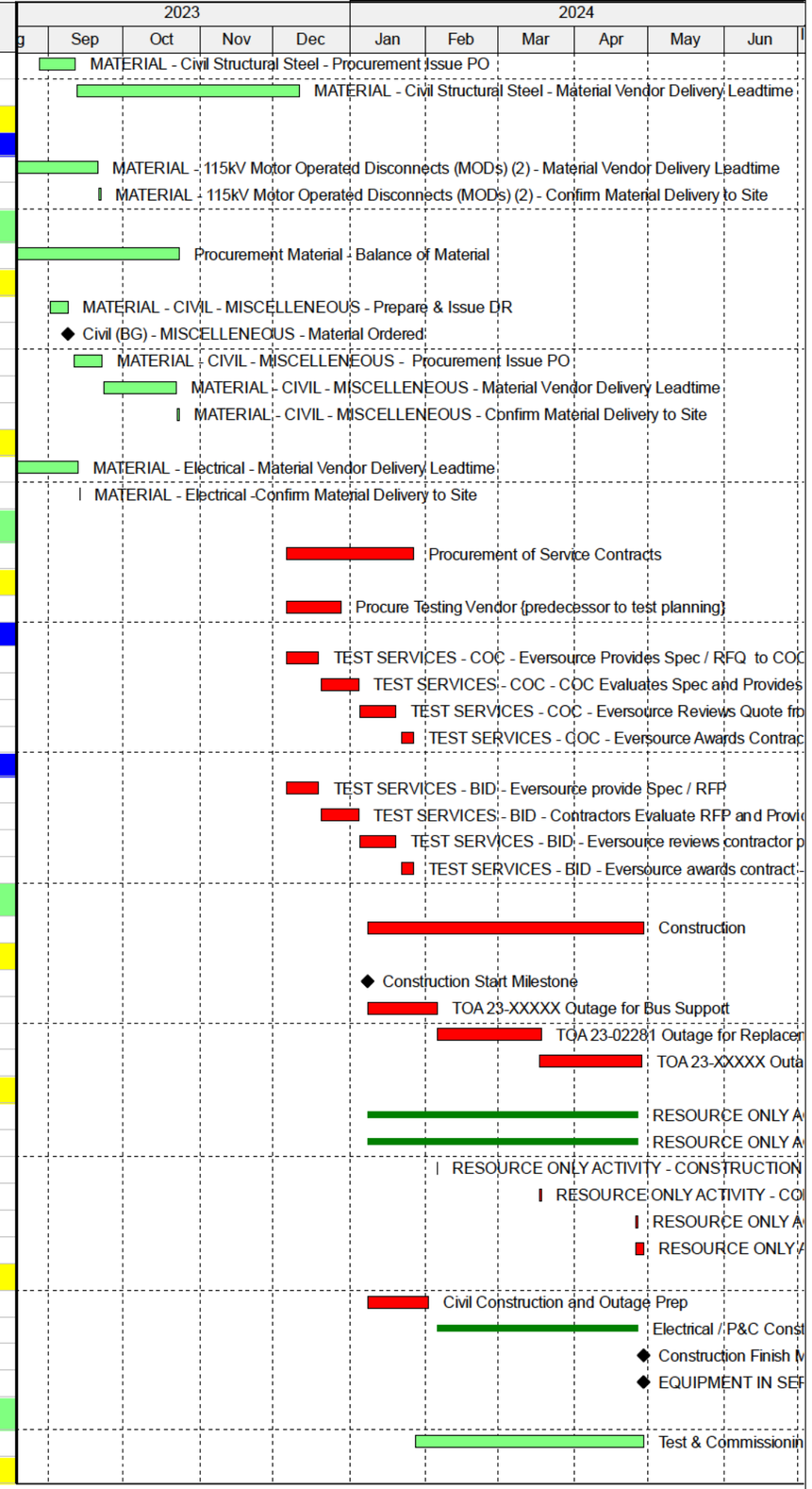
Activity ID	Activity Name	Original Duration	Start	Finish	Remaining Duration	Variance - BL1 Duration	Critical
DSSE-1250	MATERIAL - Civil Structural Steel - Procurement Issue PO	10	28-Aug-23	11-Sep-23	10	0	☐
DSSE-1260	MATERIAL - Civil Structural Steel - Material Vendor Delivery Leadtime	91	12-Sep-23	11-Dec-23	91	0	☐
Electrical Long Lead Material		196	02-Mar-23 A	21-Sep-23	39	-8	
Material - 115kV Motor Operated Disconnects (MODs) (2)		196	02-Mar-23 A	21-Sep-23	39	-8	
DSSE-1210	MATERIAL - 115kV Motor Operated Disconnects (MODs) (2) - Material Ve	196	02-Mar-23 A	20-Sep-23	38	-7	☐
DSSE-1220	MATERIAL - 115kV Motor Operated Disconnects (MODs) (2) - Confirm M	1	21-Sep-23	21-Sep-23	1	0	☐
PROCUREMENT MATERIAL - BALANCE OF MATERIAL		64	24-Jul-23 A	23-Oct-23	49	0	
PBOM1000	Procurement Material - Balance of Material	64	24-Jul-23 A	23-Oct-23	49	0	☐
Civil Balance of Material		35	01-Sep-23	23-Oct-23	35	0	
DSSE-1140	MATERIAL - CIVIL - MISCELLENEOUS - Prepare & Issue DR	5	01-Sep-23	08-Sep-23	5	0	☐
DSSE-1170	Civil (BG) - MISCELLENEOUS - Material Ordered	0		08-Sep-23	0	0	☐
DSSE-1150	MATERIAL - CIVIL - MISCELLENEOUS - Procurement Issue PO	10	11-Sep-23	22-Sep-23	10	0	☐
DSSE-1160	MATERIAL - CIVIL - MISCELLENEOUS - Material Vendor Delivery Leadt	30	23-Sep-23	22-Oct-23	30	0	☐
DSSE-1130	MATERIAL - CIVIL - MISCELLENEOUS - Confirm Material Delivery to Sit	1	23-Oct-23	23-Oct-23	1	0	☐
Electrical Balance of Material		30	18-Aug-23 A	13-Sep-23	31	3	
DSSE-1030	MATERIAL - Electrical - Material Vendor Delivery Leadtime	30	18-Aug-23 A	12-Sep-23	30	4	☐
DSSE-550	MATERIAL - Electrical -Confirm Material Delivery to Site	1	13-Sep-23	13-Sep-23	1	0	☐
PROCUREMENT OF SERVICE CONTRACTS		180	10-May-23 A	26-Jan-24	35	0	
PSC1000	Procurement of Service Contracts	180	10-May-23 A	26-Jan-24	35	0	☑
Testing Service - Direct Award or Bid		35	06-Dec-23	26-Jan-24	35	0	
A3250	Procure Testing Vendor {predecessor to test planning}	16	06-Dec-23	28-Dec-23	16	0	☑
TEST SERVICES - CONTRACTOR OF CHOICE		35	06-Dec-23	26-Jan-24	35	0	
A3470	TEST SERVICES - COC - Eversource Provides Spec / RFQ to COC	10	06-Dec-23	19-Dec-23	10	0	☑
A3480	TEST SERVICES - COC - COC Evaluates Spec and Provides Quote	10	20-Dec-23	04-Jan-24	10	0	☑
A3490	TEST SERVICES - COC - Eversource Reviews Quote from COC	10	05-Jan-24	19-Jan-24	10	0	☑
A3500	TEST SERVICES - COC - Eversource Awards Contract - PO Issued	5	22-Jan-24	26-Jan-24	5	0	☑
TEST SERVICES - BID PROCESS		35	06-Dec-23	26-Jan-24	35	0	
A3510	TEST SERVICES - BID - Eversource provide Spec / RFP	10	06-Dec-23	19-Dec-23	10	0	☑
A3520	TEST SERVICES - BID - Contractors Evaluate RFP and Provide Proposa	10	20-Dec-23	04-Jan-24	10	0	☑
A3530	TEST SERVICES - BID - Eversource reviews contractor proposals	10	05-Jan-24	19-Jan-24	10	0	☑
A3540	TEST SERVICES - BID - Eversource awards contract - PO Issued	5	22-Jan-24	26-Jan-24	5	0	☑
CONSTRUCTION		78	08-Jan-24	29-Apr-24	78	0	
CON1000	Construction	78	08-Jan-24	29-Apr-24	78	0	☑
Outages		78	08-Jan-24	28-Apr-24	78	0	
CSM	Construction Start Milestone	0	08-Jan-24		0	0	☑
TOA0001	TOA 23-XXXXX Outage for Bus Support	20	08-Jan-24	05-Feb-24	20	0	☑
TOA02281	TOA 23-02281 Outage for Replacement of 12A 2X1-4	43	05-Feb-24	18-Mar-24	43	0	☑
TOA.TBD2	TOA 23-XXXXX Outage for Replacement of 12A 3X 1-4	42	18-Mar-24*	28-Apr-24	42	0	☑
Construction Support LOEs		78	08-Jan-24	29-Apr-24	78	0	
ConRep-S	RESOURCE ONLY ACTIVITY - CONSTRUCTION - CONSTRUCTION R	78	08-Jan-24	26-Apr-24	78	0	☐
CONSTelec	RESOURCE ONLY ACTIVITY - CONSTRUCTION - ELECTRICIAN	78	08-Jan-24	26-Apr-24	78	0	☐
A1070	RESOURCE ONLY ACTIVITY - CONSTRUCTION OUTAGE 1 - SWITCH	1	05-Feb-24	05-Feb-24	1	0	☑
A3630	RESOURCE ONLY ACTIVITY - CONSTRUCTION OUTAGE 2 - SWITCH	1	18-Mar-24	18-Mar-24	1	0	☑
A1080	RESOURCE ONLY ACTIVITY - CONSTRUCTION OUTAGE 1 - SWITCH	1	26-Apr-24	26-Apr-24	1	0	☑
A3620	RESOURCE ONLY ACTIVITY - CONSTRUCTION OUTAGE 2 - SWITCH	1	26-Apr-24	29-Apr-24	1	0	☑
Substation Construction		78	08-Jan-24	29-Apr-24	78	0	
A1265	Civil Construction and Outage Prep	25	08-Jan-24	01-Feb-24	25	0	☑
A1140	Electrical / P&C Construction	59	05-Feb-24	26-Apr-24	59	0	☐
CFM	Construction Finish Milestone	0		29-Apr-24	0	0	☑
ISD	EQUIPMENT IN SERVICE DATE (requires FOOB constraint)	0		29-Apr-24*	0	0	☑
TEST & COMMISSIONING		64	27-Jan-24	29-Apr-24	64	0	
TC1000	Test & Commissioning	64	27-Jan-24	29-Apr-24	64	0	☐
Testing Activities		64	27-Jan-24	29-Apr-24	64	0	



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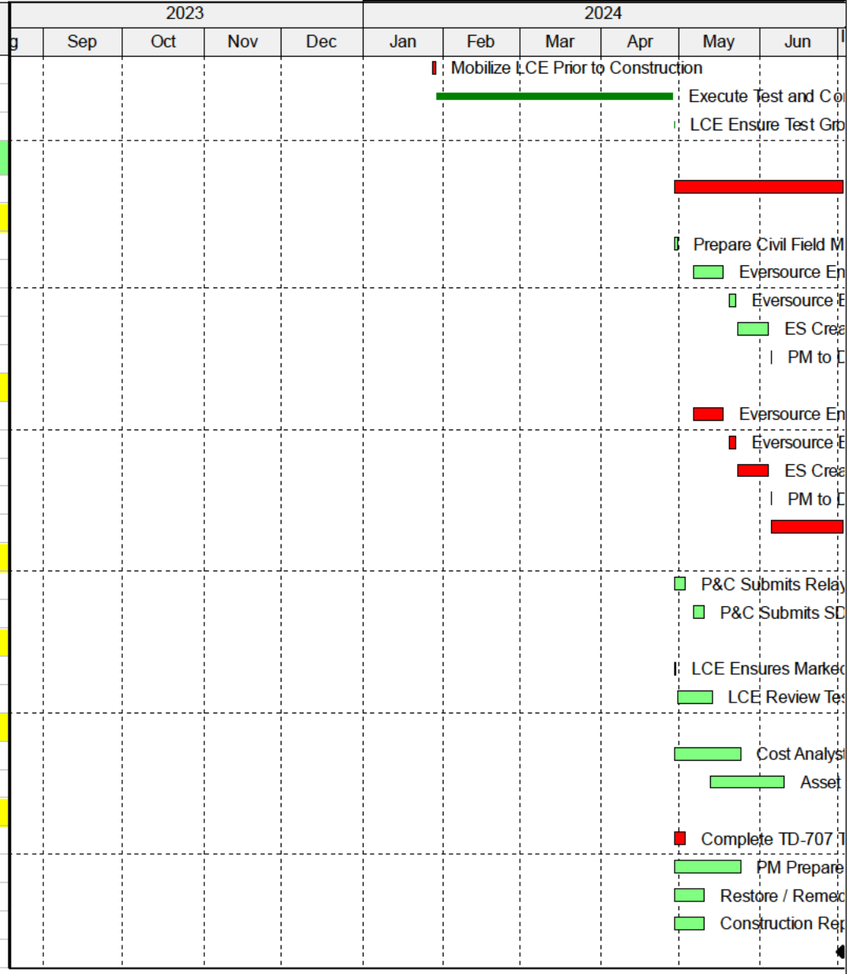
Activity ID	Activity Name	Original Duration	Start	Finish	Remaining Duration	Variance - BL1 Duration	Critical
LCE310	Mobilize LCE Prior to Construction	2	27-Jan-24	28-Jan-24	2	0	☑
LCE620	Execute Test and Commissioning Plan (with LCE Oversight)	91	29-Jan-24	28-Apr-24	91	0	☐
LCE700	LCE Ensure Test Group Prepare Electrical Field Mark Ups	0	29-Apr-24	29-Apr-24	0	0	☐
PROJECT CLOSE OUT		46	29-Apr-24	02-Jul-24	46	0	
PCO1000	Project Close Out	46	29-Apr-24	02-Jul-24	46	0	☑
Civil Close Out		27	29-Apr-24	05-Jun-24	27	0	
DSSE-900	Prepare Civil Field Mark Ups (Tie after Last Civil Construction Activity)	2	29-Apr-24	30-Apr-24	2	0	☐
DSSE-860	Eversource Engineering Verifies Civil Mark Up As-Built Drawing Package	10	06-May-24	17-May-24	10	0	☐
DSSE-970	Eversource Engineering Updates Civil As-Built Drawing Package	3	20-May-24	22-May-24	3	0	☐
DSSE-870	ES Create Transmittal, Approve Final As-Built Package, and EDC Files ar	8	23-May-24	04-Jun-24	8	0	☐
DSSE-880	PM to Document Civil As-Built Drawings Complete	1	05-Jun-24	05-Jun-24	1	0	☐
Electrical Close Out		41	06-May-24	02-Jul-24	41	0	
DSSE-820	Eversource Engineering Verifies Electrical Mark Up As-Built Drawing Pack	10	06-May-24	17-May-24	10	0	☑
DSSE-940	Eversource Engineering Updates Electrical As-Built Drawing Package	3	20-May-24	22-May-24	3	0	☑
DSSE-830	ES Create Transmittal, Approve Final As-Built Package, and EDC Files ar	8	23-May-24	04-Jun-24	8	0	☑
DSSE-840	PM to Document Electrical As-Built Drawings Complete	1	05-Jun-24	05-Jun-24	1	0	☐
DSSE-1110	Complete TD-176 Electrical Design Prep & Issue As-Built Dwgs	20	05-Jun-24	02-Jul-24	20	0	☑
P&C Close Out		10	29-Apr-24	10-May-24	10	0	
DSSE-960	P&C Submits Relay Setting As-Builts	5	29-Apr-24	03-May-24	5	0	☐
DSSE-950	P&C Submits SDS As-Builts	5	06-May-24	10-May-24	5	0	☐
LCE Closeout		11	29-Apr-24	13-May-24	11	0	
LCE800	LCE Ensures Marked up Prints Ready for Pick-up	1	29-Apr-24	29-Apr-24	1	0	☐
LCE900	LCE Review Test Data and Issue Commissioning Report	10	30-Apr-24	13-May-24	10	0	☐
Work Order / Financial Close Out		30	29-Apr-24	10-Jun-24	30	0	
A1020	Cost Analyst Prepares FINAL Units of Property	20	29-Apr-24	24-May-24	20	0	☐
A1030	Asset Management Complete Asset Update(s) in CASCADE	20	13-May-24	10-Jun-24	20	0	☐
Project Management Close Out		46	29-Apr-24	02-Jul-24	46	0	
DSSE-1100	Complete TD-707 Turnover Document / Forward to SOC & Mailing List	5	29-Apr-24	03-May-24	5	0	☑
A1040	PM Prepares Closeout Documentation, Lessons Learned Meeting, etc.	20	29-Apr-24	24-May-24	20	0	☐
A1110	Restore / Remediate Site	10	29-Apr-24	10-May-24	10	0	☐
A1260	Construction Rep Finalize CASCADE Forms (within 14 days folloiwng ISD	10	29-Apr-24	10-May-24	10	0	☐
FINISH	Project / Work Order Complete (FINAL SCHEDULE TASK/MILESTONE)	0		02-Jul-24	0	0	☑



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EVERSOURCE

Constructability Review Form: **Substation**

Project Title: [redacted] **MOD Replacement**	☐	Prior Constructability Review Performed?
	☐	Program Related Site Specific Review?
Project Numbers(s): CS00584	**Project Constructability Phase:**	
Date(s) of Constructability Review: **05/24/2023**	☐ Conceptual Engineering Design	
Click to enter a date	☒ Preliminary Engineering Design	
	☐ Detailed Engineering Design	

Project Scope Statement:
The project objective is to ensure system reliability and operator safety by replacing two (2) MODs that are at the end of their useful service lives. The Eversource standard MOD. for this application will be installed, simplifying installation and ensuring field personnel are familiar with its operation.

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	[redacted]
☐	☒	Constr. Management	[redacted]	☐	☐	Civil Engineering	
☐	☐	S/S Technical / LCE		☐	☒	Telecom	[redacted]
☐	☐	S/S Operations**		☐	☐	Environmental	
☐	☐	Field Engineering		☐	☐	Real Estate	
☐	☐	Line Engineering		☐	☐	T&D ROW	
☐	☐	Vegetation Management		☐	☐	Survey Engineering	
☐	☒	Siting	[redacted]	☐	☐	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 the 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] [redacted]_____*Name / Signature* *6/6/2023 Date*

EVERSOURCE

Constructability Review Form: **Substation**

Documents available for use prior to Constructability Review					
[X]	Document	[X]	Document	[X]	Document
☐	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	☐	Proposed Schedule	☐	Construction Sequence/Timeline
☐	Previous Notes / Comments / Observations	☐	Major Material / Equipment List	☐	Replace / Reuse of equipment

Action Items and Resolutions:

Item No.	Const. Review Action Item/Concern	Design Resolution/Mitigation:
1		
2		
3		
4		
5		

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
A	**Engineering & Asset Management ([redacted])**		
1	**Scope of Work** - Is scope adequately developed and sufficiently detailed for intended deliverable? - Any complimentary projects or other adjacent obsolete equipment for inclusion? - Any overlapping projects that could impact work/outages? - Consider Physical Installation, P&C Scope, Civil Scope, Engineering studies, Design standard adherence - Any remote station impacts? - Engineering Estimates for Design and Technical Support? (EE and EOC) Total Project	☐	Scope is adequately developed. No complimentary projects. No overlapping projects. No remote station impacts

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Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
2	**Materials Identified/Ordered** -Any concerns with BOM/Major Materials? Review BOM lead times and project need dates -Specialty Major Materials: Identify Specialty Equipment & Materials potentials - temporary/replacement - long lead items? -Any Materials needed to facilitate construction access?	☐	MOD's were paused due to a potential change in the scope. MOD's went through the exempt status to get them on time.
3	**Control House** - Review Unmapped equipment interferences, Control/Battery Enclosure Layout, HVAC System (if equipment added), space for new or modified equipment, AC / DC station breaker availability and service loading, Panel Space, Expansion, one-line and/or riser type panelboard drawings, other..	☒	No Issue
4	**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	☒	No Issue
5	**Wall, Fence, Gate, and Foundation Considerations** -Any permanent / temporary alterations or relocations required? -Pre-Project Sound Measurements Needed? Sound Walls? -Take measurements for Foundation quantities, dimensions and concrete volumes -CIP Review/Ballistic needs. Any Physical Security Requirement Consideration? -Assess condition of existing yard equipment foundations and viability for reuse (if proposed) -Review station expansion areas (if needed) for structures, old foundations, etc. -Any Steel Structural Plan Considerations? -Any impacts to construction plan?	☐	2X Foundations were found to be in poor condition, 3X are undersized, all will be replaced. 2X and 3X switch structures will be replaced. All other items are no issue.
6	**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?	☐	Conduit risers will be cut back and re-installed. No investigation.

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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	**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.)	☐	N/A, anticipate reusing conduit assuming they are in good condition.
8	**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	☐	Rework around new foundations.
9	Nomenclature / Switching One-Line Diagram -Any obvious deviations from diagrams provided?	☒	No
10	BPS Separation Requirements - Is this BPS Substation? Y/N (part of PAF) - Changes to pre-existing BPS standards?	☒	N/A
11	IEC 61850 Substation Automation and Communication Requirements - Any Impacts/Retrofit needed?	☒	No
12	Any Upgrades to ES Standards - Is retrofit needed to bring up to ES standards? Can that be done?	☒	N/A
B	**Construction ([redacted])**		
1	**Any safety hazards specific to the facility? i.e. Low Bus, Deterioration, etc.**	☐	Work zone is in close proximity to other energized areas.
2	**Prior known Site Specific Conditions** -Common or Obvious station Issues -Missing scope items that could impact costs?	☒	No
3	**Identify/Consider Required Depts for Construction?** -Who is constructor: Internal vs External Resources -S/S Ops, GO, Test, Field Engineering, etc	☒	

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
	-Specialty Contractors Required? -Required Oversite Needed - Estimated level of CR and LCE support needed		
4	**Site Plan, Access, and Temporary Construction Facilities:** -Confirm maintenance access for proposed new or replaced equipment -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) - Identification of Unique Requirements, i.e. (access bridges, station service, etc.) -Site Development Plan (grading and drainage) with Cut/Fill -Existing Rock Conditions? Potential Impacts (rock quantity)? -Any police details needed for deliveries, restricted hours, and/or need for extended hour approvals -Any Sanitary Civil Requirements? (Septic tanks, etc) -Review turning radius for delivery trucks (if critical) -Any Substation Access and site/yard access Limitations? -Office Trailer Needs: Facilities, Utilities, Restroom, Container, Dumpster Space -Weather impacts to Site (Snow Placement) -Identify Material Laydown and Security -Where will new vs removed equipment go? -Construction permit for trailers outside substation fence?	☐	1. N/A 2. N/A 3. No 4. No 5. No 6. N/A 7. N/A 8. No 9. N/A 10. Tight area for large equipment 11. Tight area for large equipment 12. Yes 13. N/A 14. N/A 15. Same position 16. No
5	Unique Equipment Considerations: Gas insulated substation, Gas insulated line, Gas insulated bus, Pass Breaker, Statcom, Sync Condenser	☒	N/A

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
6	**Outage & Energization Plan and Construction Sequence:** *Review electrical working clearances for equipment during construction, Detailed look at protection zone changes, Locked sequence or random outages, Outage durations minimized.* ***Considerations:*** -Approach Distances – Outage Requirements to maintain electrical clearances throughout proposed installation -Distribution Clearances -Clearance Holder Assignments -Drawings vs Field Conditions -Outage boundaries and interconnections -Phased approach needs for additional mobilizations -Verify outage sequence supports the planned construction sequence and timeline. (Lead Commissioning Engineer "LCE", Substation Operations, and Outage Planner input) -Any design alterations or considerations to Eliminate SCLL Conditions, Reduce Recall Time, Reduce Outage durations, Special Conditions -Additional outage requirements: Railroad Catenaries, Fiber outage, SCADA outage, Relay permissions -Seasonal or weather conditions impacts	☐	1-7 – ESOP-100 Eversource grounding requirements & MADD approach distance will be followed 8. TBD 9. TBD 10. Potential
7	**Equipment Testing & Acceptance** -Grounding plans / Resources? Will we need grounds hung? -Hi-pot testing and where will the equipment be set up?	☐	Yes
8	Need for mobile generator and where connected (if needed)	☐	No
9	Need for mobile battery and where connected (if needed)	☐	No
10	OT work required or Notable Permit Conditions (special hours)?	☐	TBD
11	Coordination of boundaries/seams (Identification of point of demarcation for connection to existing equipment and/or for coordination with other municipalities)	☒	N/A

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Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
C	**Environmental ([redacted])**		
1	Soil Pre-Characterization or Grab Sampling Completed/Planned	X	
2	**Desktop investigation and EAD Review** -Required Permits -Stormwater Considerations -Dewatering requirements -Wetland and buffer review	X	
3	Risk or presence of PCB's/Asbestos/Lead/SF6	X	
4	Transformer Spill Containment Recommended?	X	
5	Expanding Footprint / New Buildings or future Expansion Plans? (Enviro Impact)	X	
6	Environmental oversight considerations? (Inspection type/Interval)	X	
7	Environmental mitigations - Any matting or seasonal needs? Review D&M Plan with CR.	X	
D	**Siting, S&CS, and T&D Real Estate ([redacted])**		
1	**Any regulatory concerns or approvals needed?** - Consider scope/design alterations to mitigate concerns - Consider Visual screening considerations (feasibility or location) -Zoning Relief and Permits required	☐	No siting filing needed if all replacement work is like for like, with no increase in height/size of equipment or change in equipment location. No fence expansion.
2	**Neighbor/Abutter impacts:** - Any noise, visual impacts, or sensitive abutters - Any changes to lighting or additional lighting needed?	☒	
3	Review for roadway, gate access, trailers, equip height, noise, weekend/night work, or any potential public disturbance related to work	☒	
4	Installation within Eversource Rights - Is Rights and Restrictions Review required?	☒	
5	Expanding Footprint / New Buildings or future Expansion Plans?	☒	
6	Proposed Equipment on same property? - Any Encroachments	☒	

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Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
F	**Protection & Controls ([redacted])**		
1	Panel Graphic additions and/or Modifications	☒	N/A
2	Space on existing panels for new equipment? (front & rear of panel fronts)	☒	N/A
3	Panel fronts conform to drawings	☒	N/A
4	Access to bring new panels into control enclosure	☒	N/A
5	Nameplate list and location of nameplates	☒	N/A
6	Verifies that relays and meters that will be an interconnected project work are as shown on the drawings.	☒	N/A
7	Temporary protection, relays, control cable needed? How long will they be required?	☒	N/A
8	Will relay setting changes be needed? Any additional outage requirements for changes?	☒	N/A
G	**Telecom Engineering** Per [redacted] email on 10/27/22 "This should use the DSCADA cell modem solution to transport data from the MOD to the substation and then come back to SCADA over an existing SCADA remote").		
1	Review telecom equipment in existing control enclosure	☒	
2	Review path to get telecom circuits into the station and paths within the control house. Determine whether new underground duct or overhead tray work 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	Review and list any remote station impacts/updates	☒	
6	Confirm whether correct interface equipment is available (i.e.) for fiber termination or multiplexor termination	☒	
7	Confirm whether existing communications cabinets are enough to support additional telecommunications equipment installed	☒	

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Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
8	Review space for any required additional communications cabinets which may be required to support additional telecommunications equipment installed	☒	
9	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)

Photos from site visit in October 22.

[redacted]

Emergency MOD Replaced, circled brackets installed to match the height.

12' To the bottom of the MOD support structure.

17.5' To the top of the MOD.

ES_VER: 05/2015

6/16/2023 7:55 AM — GALUA — 11701-91001.DWG — As Built

6/16/2003 7:55 AM - GALILA - 11701-91001 DWG - Construction-All
FS VEP: 05/2015