EVERSOURCE

Operations Project Authorization Form

Approved on November 7, 2024 EPAC

Link to Meeting Minutes

Project Title: [redacted] **Conversion**	**Project Number: CS00636**
Date Prepared: 10/24/2024	**Company: Eversource CT**
Organization: System Planning	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - Transformer**
Managing Organization: Project Mgt and Construction	**Schedule ID#: 80768923**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Estimated in service date: April 2026	**Emergency Related Request? No**
Eng./Constr. Resources Budgeted? Yes	**Facility Type** (check all that apply): ☐ PTF ☐ non-PTF ☐ local PTF ☒ Distribution ☐ N/A (General Plant)
EJ Community: No	**Authorization Type: Full Funding**
Total Capital Request: $616K	

[1] Executive Summary

This Project Authorization Form (PAF) requests full funding of $616K for distribution substation work at [redacted] located in Old Saybrook, CT. [redacted] in the towns of Westbrook and Old Saybrook, CT.

Project CS00365 - [redacted] was approved for full funding on April 27, 2023. The scope of this project is to increase the substation capacity [redacted] All construction efforts on this project will be coordinated with the

conversion [redacted] in project CS00365. The in-service date (ISD) for project CS00365 is April 2026.

To convert [redacted] at Saybrook, the taps inside the transformers will need to be changed. This will require draining the oil, changing taps, and refilling oil. The lightning arresters and potential transformers (PTs) will also need to be removed and replaced.

Initial funding of $75K was approved in PowerPlan on 07/20/2023 (Reference 1). As of September 3, 2024, $26K has been spent to complete preliminary engineering design, scope development and evaluations, develop the full funding PAF planning grade estimates, perform a constructability walkdown and outage planning.

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[2] Project Costs Summary

Note: Dollar values are in thousands and rounded to nearest thousand

Line item Category	Prior Authorized	Actuals to Date	2024 to Go	2025	2026	2028	Total Request
1. ROW / Easements / Land Acquisition		-	-	-	-	-	-
2. Environmental Approvals / Permits		-	-	-	-	-	-
3. Outreach		-	-	-	$2	-	$2
4. Siting Approvals / Permits		-	-	-	$4	-	$4
5. Engineering / Design		$8	$10	$2	$1	-	$21
6. Materials (Eversource purchased)		-	-	-	$54	-	$54
7. Construction (incl materials by contractors)		-	-	-	$91	-	$91
8. Testing / Commissioning		-	-	-	$119	-	$119
9. Project Mgmt. Team		$1	$1	$3	$25	-	$31
10. Removals		-	-	-	$1	-	$1
11. Other		-	-	-	$2	-	$2
12. Risks		-	-	-	$48	-	$48
SUBTOTAL DIRECTS W/ RISKS	$75	$9	$11	$6	$346	-	$372
13. Indirects/Overhead		$16	$17	$11	$182	-	$225
14. AFUDC		$1	-	-	-	-	$1
PROJECT TOTAL – BASELINE BUDGET	$75	$26	$28	$16	$528	-	$598
15. Contingency		-	-	-	$18	-	$18
TOTAL CAPITAL REQUEST	$75	$26	$28	$16	$546	-	$616
16. Reimbursables/Customer Contribution		-	-	-	-	-	-
PROJECT TOTAL (LESS REIMBURSABLES)	$75	$26	$28	$16	$546	-	$616
O&M							-
TOTAL REQUEST	$75	$26	$28	$16	$546	-	$616

Detail other costs, project risk items and their allocations:

Other Costs: $2K - Indirect – SUT – Material External

Risk	Allocation
1. Transformer Oil Processing	$28.0K
2. Weather delay impacts	$19.5K
3.	$
4.	$
5.	$
Total	$47.5K

Explain unique payment provisions, if applicable:

N/A

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

N/A

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[3] Technical Justification

Project Need, Objective and Justification



Project Scope

I. Description of Work

[redacted]

II. Equipment Removals

[redacted]

III. Equipment Additions

[redacted]

IV. Identification of Required Engineering Studies

[redacted]

V. Site Development:

[redacted]

[redacted]

VI. Below Grade Design Requirements

1. Foundation Addition/Modifications: **N/A**
2. Ground Grid Modifications/Expansion: N/A
   a. All new equipment and structures will require ground connections to the existing ground grid in accordance with Eversource SUB 014.
   b. Minor ground grid repair will be required in the areas of the existing station that will be excavated new foundations, below grade raceway and foundation removal.
3. Raceway Additions/Modifications: N/A

VII. Construction, Outage and Energization Considerations and Mobile XFMR Package

[redacted]

Protection & Controls Scope of Work-Existing R&CE

[redacted]

A constructability review was performed on February 2, 2024. This review noted that all new equipment will require ground connections to existing ground grid in accordance with Eversource SUB 014. No other issues or concerns were noted at this time.

Substation Equipment

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

Background

[redacted]

[redacted]

[4] Alternatives Considered

Alternative 1 – Do Nothing

[redacted]

Alternative 2 – [redacted]
(Preferred Solution)

[redacted]

[5] Project Schedule

Milestone	Scheduled Completion Date
IFR Approval	July 2023
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)	July 2024
EPAC Full Funding Approval	November 2024
Siting Approval (for applicable projects)	N/A
Start of Construction	April 2026
Project In-Service Date (ISD)	April 2026
Project Need Date (for applicable projects)	April 2026
ISO Related Milestones: (for applicable projects)	
• ISO Preferred Alternative Selected	N/A
• PAC Presentation	N/A
• TCA Submittal	N/A

See Attachment B for the P6 schedule.

[6] Regulatory Approvals

N/A

EJ Community Considerations:

[redacted] is not located within a designated Environmental Justice community.

[7] Risk and Risk Mitigation Plans

Contingency:

A total of $18K has been allocated for project unknowns.

Risk Mitigation:

Risk	Mitigation
1. Transformer Oil Processing	Additional risk funds allocated in case the oil needs to be processed.
2.Weather Delays Impact	Define construction critical paths and ensure that on time resolutions are developed for projects to avoid delays. Budget has been allocated to assist with OT
3.Single Contingency Load Loss (SCLL)	A mobile transformer will be available and on site.
4.	
5.	

[8] References

References
1. CS00636 - [redacted] Conv - IFR (Approved 7/10/2023)
2. CS00365 – 405192 – [redacted] – Distribution Transf Replc Addition and Station Reconfig – PAF (approved April 27, 2023)
3. DSPG 2020 - Distribution System Planning Guide. September 22, 2020.

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

Attachment	Included in Submittal?
A. Cost Estimate – ESF – [redacted] Conversion r0	*YES*
B. P6 Schedule – [redacted] Conversion - 09-17-24	*YES*
C. CS00636 [redacted] Substation Constructability Review Form	*YES*
D. [redacted] _Operating Diagram	*YES*

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

Project Checklist - Transmission & Substation Capital Project		
Project Name: [redacted]	**Conversion**	**Project Number: CS00636**
Facility Type: ☐BPS ☐BES ☐PTF ☐local PTF ☐non-PTF ☐CIP ☒Distribution ☐General Plant ☐CONVEX ☐SCADA		
PLANNING		
Is a NX-9 required?	Yes	
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]	**Conversion**	**Project Number: CS00636**
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?	N/A	
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	
Has Project Services reviewed this project?	Yes Choose an item	
Name of Project Services contact:	Matthew Newfield	
What is the level of outreach expected?	Low	
Has ROW Coordination reviewed this project?	N/A	
Is this project coordinating with other existing scheduled work?	Yes	
ENVIRONMENTAL JUSTICE COMMUNITIES		
Has the Equity and Environmental Justice team reviewed this project?	N/A	
Name of Equity and Environmental Justice contact:	N/A	
Is any part of this project in an Environmental Justice Community?	No	
Was the Equity Framework Checklist completed?	N/A	
Has enhanced outreach required per State Regulatory requirements been completed?	N/A	
INITIATOR		
Has a field constructability review been completed?	Yes	

Project Checklist - Transmission & Substation Capital Project		
Project Name: [redacted] Conversion		**Project Number: CS00636**
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	

Return to TOC

Project name [redacted] **Conversion**
Project no **CS00636**
Project manager
Project estimator [redacted]

Est accuracy **Planning (-25% to +25%)**
Ext accuracy
State **CT**
Business unit **Distribution**

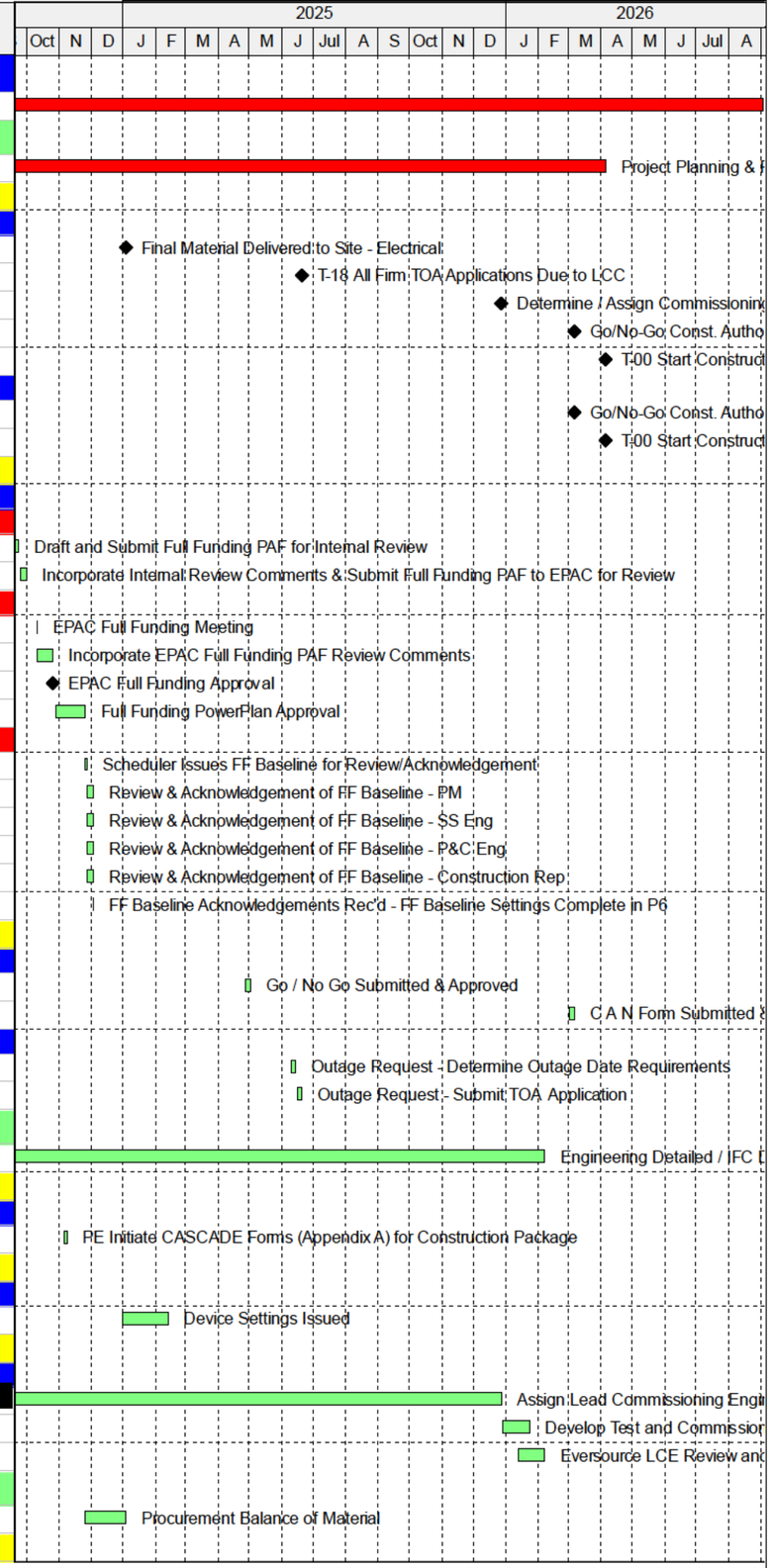
Description	% Directs	% Total	Saybrook 22D Conversion
ROW / Easements / Land purchases	0.0%	0.0%	-
Environmental Approvals / Permits	0.0%	0.0%	-
Outreach	0.4%	0.2%	1,500
Siting Approvals / Permits	1.0%	0.6%	3,900
Engineering / Design	5.7%	3.5%	21,400
Materials (Eversource purchased)	14.5%	8.8%	54,000
Construction (inc contractor sourced material)	24.5%	14.8%	91,400
Testing / Commissioning	31.8%	19.2%	118,500
PMT Project Mgmt Team	8.4%	5.1%	31,100
Removals	0.3%	0.2%	1,000
Other	0.6%	0.3%	2,100
Risks	12.8%	7.7%	47,500
Project Directs (including risks)	**100.0%**	**60.5%**	**372,400**
Indirects/Overhead		36.5%	224,700
AFUDC		0.1%	500
Project Total - Baseline Budget		**97.1%**	**597,600**
Contingency		2.9%	18,000
Project Total - Approval Level		**100.0%**	**615,600**
Reimbursables/Customer Contribution		0.0%	-
Project Total (less reimbursables)			**615,600**

Metrics	
	2 XFMR
	307,800 $/XFMR
Escalation (included above)	29,900
Miscellaneous	
Risks & Contingency / Project Total - Approval level (less Risks & Contingency)	11.91%
Estimate Range	*Planning (-25% to +25%)*
Low	461,700
Expected	615,600
High	769,500

Return to TOC

CBS1 > 2 > 3 > 4 > Cat	Description	Total Amount	Actuals	2024 Amount	2025 Amount	2026 Amount
Saybrook 22D Conversion		615,500	25,448	28,030	16,247	545,776
03	SCS Outreach	1,488	-	-	-	1,488
04	Siting Approvals / Permits	3,907	-	-	-	3,907
05	Engineering / Design	21,376	8,120	10,012	2,349	895
06	Equipment /Materials (Eversource purchased)	53,965	-	-	-	53,965
07	Construction (incl matl's by contractors)	91,441	-	-	-	91,441
08	Testing / Commissioning	118,469	-	-	-	118,469
09	PMT Project Mgmt Team	31,112	1,265	1,216	3,438	25,193
10	Removals	997	-	-	-	997
11	Other	2,133	-	-	-	2,133
12	Risks	47,500	-	-	-	47,500
13	Indirects/Overhead	224,653	15,606	16,801	10,460	181,787
14	AFUDC	457	457	-	-	-
15	Contingency	18,000	-	-	-	18,000
Grand Total		615,500	25,448	28,030	16,247	545,776

Activity ID	Activity Name	Original Duration	Start	Finish	Remaining Duration	Resources
[redacted] (CS00636)		857	17-Apr-23 A	02-Sep-26	499	
PT1000	Project Timeline	857	17-Apr-23 A	02-Sep-26	499	
PROJECT PLANNING & FUNDING		562	12-Jan-24 A	06-Apr-26	391	
PPF1000	Project Planning & Funding	562	12-Jan-24 A	06-Apr-26	391	
T-Minus Milestones		317	02-Jan-25	06-Apr-26	317	
Electrical T-Milestones		317	02-Jan-25	06-Apr-26	317	
BT0401	Final Material Delivered to Site - Electrical	0		02-Jan-25	0	
BT1801	T-18 All Firm TOA Applications Due to LCC	0		20-Jun-25*	0	
BT2404	Determine / Assign Commissioning Engineer	0		26-Dec-25	0	
BT0203	Go/No-Go Const. Author. Notice form completed - Electrical	0		06-Mar-26	0	
BT00	T-00 Start Construction - Electrical	0	06-Apr-26*		0	
P&C T-Minus Milestones		30	06-Mar-26	06-Apr-26	30	
ET0203	Go/No-Go Const. Author. Notice form completed - P&C	0		06-Mar-26	0	
ET00	T-00 Start Construction - P&C	0	06-Apr-26*		0	
Project Funding		53	17-Sep-24 A	03-Dec-24	54	
Full Funding		53	17-Sep-24 A	03-Dec-24	54	
PAF - FF		10	17-Sep-24 A	30-Sep-24	11	
PAFF2000	Draft and Submit Full Funding PAF for Internal Review	6	17-Sep-24 A	23-Sep-24	6	[redacted]
PAFF2100	Incorporate Internal Review Comments & Submit Full Funding PAF to EPAC for Review	5	24-Sep-24	30-Sep-24	5	
EPAC - FF		31	10-Oct-24	25-Nov-24	31	
PAFF2200	EPAC Full Funding Meeting	1	10-Oct-24	10-Oct-24	1	
PAFF2210	Incorporate EPAC Full Funding PAF Review Comments	10	11-Oct-24	25-Oct-24	10	
FF1010	EPAC Full Funding Approval	0		25-Oct-24	0	
FF1000	Full Funding PowerPlan Approval	20	28-Oct-24	25-Nov-24	20	
Full Funding Schedule Baseline Acknowledgement - FF		5	26-Nov-24	03-Dec-24	5	
FFB_03	Scheduler Issues FF Baseline for Review/Acknowledgement	1	26-Nov-24	26-Nov-24	1	
FFB_04A	Review & Acknowledgement of FF Baseline - PM	3	27-Nov-24	02-Dec-24	3	
FFB_04B	Review & Acknowledgement of FF Baseline - SS Eng	3	27-Nov-24	02-Dec-24	3	
FFB_04D	Review & Acknowledgement of FF Baseline - P&C Eng	3	27-Nov-24	02-Dec-24	3	
FFB_04K	Review & Acknowledgement of FF Baseline - Construction Rep	3	27-Nov-24	02-Dec-24	3	
FFB_10	FF Baseline Acknowledgements Rec'd - FF Baseline Settings Complete in P6	1	03-Dec-24	03-Dec-24	1	
Project Management		218	28-Apr-25	06-Mar-26	218	
Compliance Authorization Notification (CAN)		218	28-Apr-25	06-Mar-26	218	
PR1001	Go / No Go Submitted & Approved	5	28-Apr-25*	02-May-25	5	
PR1000	C A N Form Submitted & Approved	5	02-Mar-26*	06-Mar-26	5	
Outage Permits / TOAs Request		10	09-Jun-25	20-Jun-25	10	
A00400	Outage Request - Determine Outage Date Requirements	5	09-Jun-25*	13-Jun-25	5	
A00410	Outage Request - Submit TOA Application	5	16-Jun-25*	20-Jun-25	5	
ENGINEERING DETAILED / IFC DESIGN		472	26-Mar-24 A	06-Feb-26	351	
ENG1000	Engineering Detailed / IFC Design	472	26-Mar-24 A	06-Feb-26	351	
Electrical Engineering		5	04-Nov-24	08-Nov-24	5	
Electrical Engineering IFC Design		5	04-Nov-24	08-Nov-24	5	
CSD1000	PE Initiate CASCADE Forms (Appendix A) for Construction Package	5	04-Nov-24*	08-Nov-24	5	[redacted]
P&C Engineering		30	31-Dec-24	12-Feb-25	30	
P&C Engineering IFC Design		30	31-Dec-24	12-Feb-25	30	
A3600	Device Settings Issued	30	31-Dec-24*	12-Feb-25	3	[redacted]
Lead Commissioning Engineer		426	30-May-24 A	06-Feb-26	351	
LCE Commissioning Plan		426	30-May-24 A	06-Feb-26	351	
LCE200	Assign Lead Commissioning Engineer	5	30-May-24 A	26-Dec-25	321	[redacted]
TST500	Develop Test and Commissioning Plan	20	29-Dec-25	23-Jan-26	20	Testing
LCE500	Eversource LCE Review and Approve Testing and Commissioning Plan	20	12-Jan-26	06-Feb-26	20	[redacted]
PROCUREMENT MATERIAL - BALANCE OF MATERIAL		25	26-Nov-24	02-Jan-25	25	
PBOM1000	Procurement Balance of Material	25	26-Nov-24	02-Jan-25	25	
Electrical Balance of Material		25	26-Nov-24	02-Jan-25	25	



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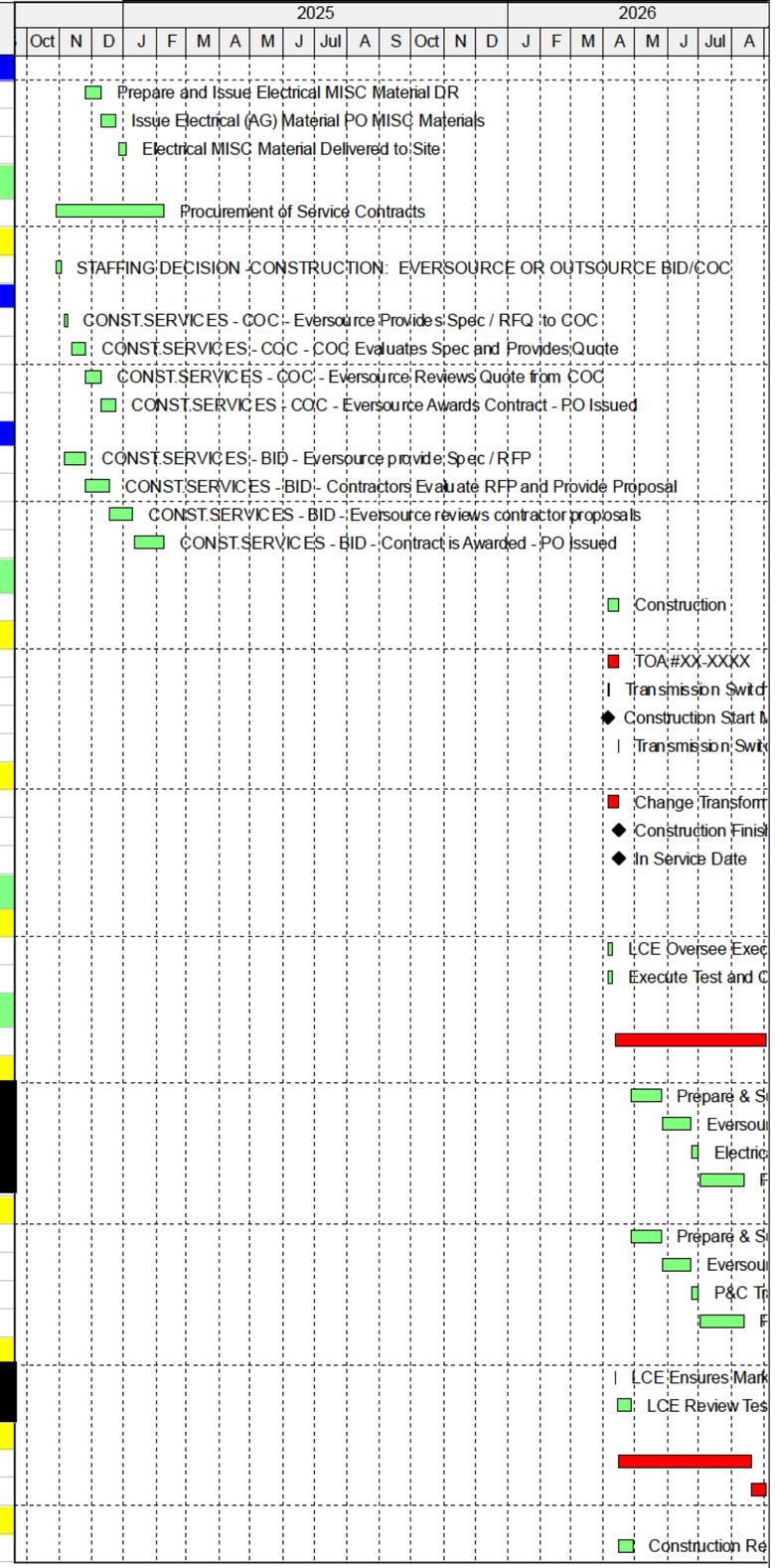
Activity ID	Activity Name	Original Duration	Start	Finish	Remaining Duration	Resources
Electrical MISC BOM		25	26-Nov-24	02-Jan-25	25	
EMAT1300	Prepare and Issue Electrical MISC Material DR	10	26-Nov-24	10-Dec-24	10	[redacted]
EMAT1310	Issue Electrical (AG) Material PO MISC Materials	10	11-Dec-24	24-Dec-24	10	Purchasing Department
EMAT1320	Electrical MISC Material Delivered to Site	5	26-Dec-24	02-Jan-25	5	Purchasing Department
PROCUREMENT OF SERVICE CONTRACTS		379	20-Jul-23 A	07-Feb-25	70	
PSC1000	Procurement of Service Contracts	379	20-Jul-23 A	07-Feb-25	70	
Constructor of Choice - Direct Award or Bid		70	28-Oct-24	07-Feb-25	70	
3550	STAFFING DECISION -CONSTRUCTION: EVERSOURCE OR OUTSOURCE BID/COC	5	28-Oct-24	01-Nov-24	5	[redacted]
CONSTRUCTION SERVICES - CONTRACTOR OF CHOICE		35	04-Nov-24	24-Dec-24	35	
3390	CONST.SERVICES - COC - Eversource Provides Spec / RFQ to COC	5	04-Nov-24	08-Nov-24	5	Purchasing Department
3400	CONST.SERVICES - COC - COC Evaluates Spec and Provides Quote	10	12-Nov-24	25-Nov-24	10	Purchasing Department
3410	CONST.SERVICES - COC - Eversource Reviews Quote from COC	10	26-Nov-24	10-Dec-24	10	Purchasing Department
3420	CONST.SERVICES - COC - Eversource Awards Contract - PO Issued	10	11-Dec-24	24-Dec-24	10	Purchasing Department
CONSTRUCTION SERVICES - BID PROCESS		65	04-Nov-24	07-Feb-25	65	
3430	CONST.SERVICES - BID - Eversource provide Spec / RFP	15	04-Nov-24	25-Nov-24	15	Purchasing Department
3440	CONST.SERVICES - BID - Contractors Evaluate RFP and Provide Proposal	15	26-Nov-24	17-Dec-24	15	Purchasing Department
3450	CONST.SERVICES - BID - Eversource reviews contractor proposals	15	18-Dec-24	09-Jan-25	15	Purchasing Department
3460	CONST.SERVICES - BID - Contract is Awarded - PO Issued	20	10-Jan-25	07-Feb-25	20	Purchasing Department
CONSTRUCTION		9	06-Apr-26	16-Apr-26	9	
CON1000	Construction	9	06-Apr-26	16-Apr-26	9	
Outages		9	06-Apr-26	16-Apr-26	9	
11176	TOA #XX-XXXX	11	06-Apr-26	16-Apr-26	11	[redacted]
1757	Transmission Switching - Line (Off)	1	06-Apr-26	06-Apr-26	1	
CSM	Construction Start Milestone	0	06-Apr-26		0	
1107	Transmission Switching - Line (On)	1	16-Apr-26	16-Apr-26	1	
Substation Construction		9	06-Apr-26	16-Apr-26	9	
CON1020	Change Transformer 276 to 23KV Taps	11	06-Apr-26	16-Apr-26	11	
CFM	Construction Finish Milestone	0		16-Apr-26	0	
ISD	In Service Date	0		16-Apr-26*	0	
TEST & COMMISSIONING		5	06-Apr-26	10-Apr-26	5	
Testing Activities		5	06-Apr-26	10-Apr-26	5	
LCE610	LCE Oversee Execution of Test and Commissioning Plan	5	06-Apr-26	10-Apr-26	5	[redacted]
TST610	Execute Test and Commissioning Plan	5	06-Apr-26	10-Apr-26	5	Testing
PROJECT CLOSE OUT		103	13-Apr-26	02-Sep-26	103	
PCO1000	Project Close Out	103	13-Apr-26	02-Sep-26	103	
Electrical Close Out		77	28-Apr-26	12-Aug-26	77	
EV1000	Prepare & Submit Electrical Field Mark Ups	21	28-Apr-26	26-May-26	21	[redacted]
EV1300	Eversource Engineering Verifies Quality of Submitted Electrical Drawings	20	27-May-26	23-Jun-26	20	
EV1400	Electrical Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	5	24-Jun-26	30-Jun-26	5	
EV1500	FE Files Substation Design Drawings at Station	30	02-Jul-26	12-Aug-26	30	
P&C Close Out		77	28-Apr-26	12-Aug-26	77	
PC1000	Prepare & Submit P&C Field Mark Ups	21	28-Apr-26	26-May-26	21	[redacted]
PC1300	Eversource Engineering Verifies Quality of Submitted P&C Drawings	20	27-May-26	23-Jun-26	20	
PC1310	P&C Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	5	24-Jun-26	30-Jun-26	5	
PC1500	FE Files P&C Design Drawings at Station	30	02-Jul-26	12-Aug-26	30	
LCE Closeout		11	13-Apr-26	27-Apr-26	11	
LCE800	LCE Ensures Marked up Prints Ready for Pick-up	1	13-Apr-26	13-Apr-26	1	[redacted]
LCE900	LCE Review Test Data and Issue Project Close Out Notification	10	14-Apr-26	27-Apr-26	10	
Work Order / Financial Close Out		100	16-Apr-26	02-Sep-26	100	
FINCO1000	PM/ Engr/ Plant Acct Develop Prelim UOP & UOR List(s)	90	16-Apr-26	19-Aug-26	90	[redacted]
FINCO1010	Review UOP, compl forms, fwrd to Plant Acctng, enter in wrkbk	10	20-Aug-26	02-Sep-26	10	
Project Management Close Out		100	16-Apr-26	02-Sep-26	100	
CSD1050	Construction Rep Finalize CASCADE Forms (within 14 days following ISD)	10	16-Apr-26	29-Apr-26	10	[redacted]



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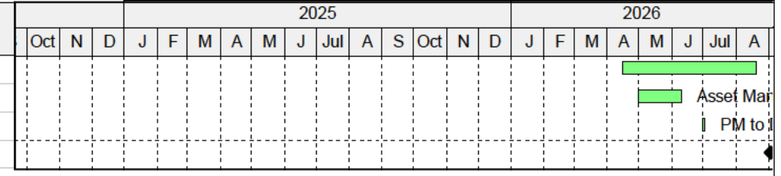
Activity ID	Activity Name	Original Duration	Start	Finish	Remaining Duration	Resources
COMPL1010	Final Inspection and Punchlist Work	90	16-Apr-26	19-Aug-26	90	[redacted]
CSD1060	Asset Management Complete Asset Update(s) in CASCADE	30	30-Apr-26	10-Jun-26	30	
PM1100	PM to Document Electrical As-Built Drawings Complete (Electrical and P&C)	1	01-Jul-26	01-Jul-26	1	[redacted]
COMPL1020	Project Complete	0		02-Sep-26	0	



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Substation Constructability Review

Project Title: [redacted] Conversion	☒	Prior Constructability Review Performed? February 2, 2024. The second Constructability Review was performed in 5/28/24 to transition the project from [redacted] to [redacted] as the PM
	☐	Program Related Site Specific Review?
Project Numbers(s): CS00636	**Project Constructability Phase:** ☐ Conceptual Engineering Design ☒ Preliminary Engineering Design ☐ Detailed Engineering Design	
Date(s) of Constructability Review: **02/02/2024** 05/28/2024 Constructability Review to transition project to new PM		

[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] (CR) [redacted] (Outage Coordinator)	☐	☐	Civil Engineering	
☐	☐	S/S Technical / LCE		☐	☐	Telecom	
☒	☒	S/S Operations**	[redacted] Supervisor SS Ops	☐	☐	Environmental	
☐	☐	Field Engineering		☐	☐	Real Estate	
☐	☐	Line Engineering		☐	☐	ROW T&D Rights & Survey	
☐	☐	Vegetation Management		☐	☐	Survey Engineering	

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Substation Constructability Review

☐	☐	Siting		☐	☐	Cost Estimating	
☐	☐	Safety		☐	☐	Project Services (Outreach)	
☐	☐	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] 5/28/24

Name / Signature *Date*

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		

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Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
A	**Engineering & Asset Management**		
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	☐	- The scope is adequately developed for the intended deliverable - All engineering done with internal resources [redacted]
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?	☒	- No concerns with lead time for materials needed for this project. Estimated start date April 2026 which provides enough time to order lightning arresters and potential transformers. - No materials needed to facilitate construction access
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..	☒	- N/A
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	☒	- N/A.

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Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
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?	☒	N/A. No substation expansion requirements and no impacts to existing yard design.
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?	☒	N/A. There is no below grade/enclosure raceway work associated with this project
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. There is no below grade work associated with this project
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	☒	- All new equipment and structures will require ground connections to the existing ground grid in accordance with Eversource SUB 014. - Minor ground grid repair will be required in the areas of the existing station that will be excavated new foundations, below grade raceway and foundation removal.

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Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
9	Nomenclature / Switching One-Line Diagram -Any obvious deviations from diagrams provided?	☒	- N/A. No obvious deviations from nomenclature/switching One-Line Diagram.
10	BPS Separation Requirements - Is this BPS Substation? Y/N (part of PAF) - Changes to pre-existing BPS standards?	☒	- [redacted] is not a BPS station
11	IEC 61850 Substation Automation and Communication Requirements - Any Impacts/Retrofit needed?	☒	- N/A. No impacts/retrofit needed related to Substation Automation and Communication.
12	Any Upgrades to ES Standards - Is retrofit needed to bring up to ES standards? Can that be done?	☒	- N/A. No upgrades to ES Standards. - All engineering and design will be performed in accordance with Eversource Standards.
B	**Construction**		
1	**Any safety hazards specific to the facility? i.e., Low Bus, Deterioration, etc.**	☒	- No Safety Hazards identified.
2	**Prior known Site Specific Conditions** -Common or Obvious station Issues -Missing scope items that could impact costs?	☒	- No obvious station issues or missing scope that could impact costs.
3	**Identify/Consider Required Depts for Construction?** -Who is constructor: Internal vs External Resources -S/S Ops, GO, Test, Field Engineering, etc. -Specialty Contractors Required? -Required Oversite Needed - Estimated level of CR and LCE support needed	☒	- No concerns with construction-related resources. - Internal Construction Resources will likely be used to execute this project. SS Ops involved in project meetings and Constructability Review walkdowns.

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Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info 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?	☒	- No concerns with site access and needs for temporary construction facilities. - No lay down area needed.
5	Unique Equipment Considerations: Gas insulated substation, Gas insulated line, Gas insulated bus, Pass Breaker, Statcom, Sync Condenser	☒	N/A

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Substation Constructability Review

	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	☒	- [redacted] - A construction sequence plan will be developed for this project.
7	**Equipment Testing & Acceptance** -Grounding plans / Resources? Will we need grounds hung? -Hi-pot testing and where will the equipment be set up?	☒	- There are no concerns with equipment testing and acceptance.
8	Need for mobile generator and where connected (if needed)	☒	- N/A. No need for mobile generator.
9	Need for mobile battery and where connected (if needed)	☒	- N/A. No need for mobile battery.
10	OT work required or Notable Permit Conditions (special hours)?	☒	- N/A. No OT work identified yet.
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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Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
C	**Environmental**		
1	Soil Pre-Characterization or Grab Sampling Completed/Planned	☒	- N/A. Not needed for planned work.
2	**Desktop investigation and EAD Review** -Required Permits -Stormwater Considerations -Dewatering requirements -Wetland and buffer review	☒	- N/A. Not needed for planned work.
3	Risk or presence of PCB's/Asbestos/Lead/SF6	☒	- N/A
4	Transformer Spill Containment Recommended?	☒	- N/A
5	Expanding Footprint / New Buildings or future Expansion Plans? (Enviro Impact)	☒	- N/A. No substation expansion requirements and no impacts to existing yard design.
6	Environmental oversight considerations? (Inspection type/Interval)	☒	- N/A
7	Environmental mitigations - Any matting or seasonal needs? Review D&M Plan with CR.	☒	- N/A
D	**Siting, Project Services, and ROW T&D Rights & Survey**		
1	**Any regulatory concerns or approvals needed?** - Any concerns noted that could be mitigated by scope/design alterations? - Likely to require visual screening? What considerations (feasibility or location)? -Zoning Relief and Permits required?	☒	- No regulatory concerns identified.
2	Other siting considerations?	☒	- N/A.
3	**Neighbor/Abutter impacts:** - Any noise, visual impacts, or sensitive abutters - Any changes to lighting or additional lighting needed?	☒	- No noise, visual impacts, or sensitive abutters identified. All proposed work will happen inside the substation.
4	Review for roadway, gate access, trailers, equip height, noise, weekend/night work, or any potential public disturbance related to work	☒	- No public disturbance related to the work.
5	Installation within Eversource Rights - Is Rights and Restrictions Review required?	☒	- Rights and Restrictions Review is not required.

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Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
6	Expanding Footprint / New Buildings / Fence line or future Expansion Plans?	☒	- Project does not require footprint expansion or new buildings.
7	Proposed Equipment on same property? - Any Encroachments	☒	- No encroachments
F	**Protection & Controls**		
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.	☒	- There are no concerns with station drawings reflecting existing relays.
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?	☐	[redacted] - Eversource P&C engineering will be responsible for developing these settings and issuing them using Powerbase.
G	**Telecom Engineering**		
1	Review telecom equipment in existing control enclosure	☒	N/A. No telecom scope for this project
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.	☒	N/A
3	Review current or proposed Telecom equipment power connections and validate with P&C any need for system 1 and system 2 separation.	☒	N/A
4	Review current Telecom fiber diversity and validate with P&C any fiber diversity requirements.	☒	N/A
5	Review and list any remote station impacts/updates	☒	N/A

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Substation Constructability Review

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
6	Confirm whether correct interface equipment is available (i.e.) for fiber termination or multiplexor termination	☒	N/A
7	Confirm whether existing communications cabinets are enough to support additional telecommunications equipment installed	☒	N/A
8	Review space for any required additional communications cabinets which may be required to support additional telecommunications equipment installed	☒	N/A
9	Review third party Telecommunications at substation and confirm whether additional capacity or Ground Potential Rise protection is required	☒	N/A

Photos

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

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