EVERSOURCE

Operations Project Authorization Form

Approved on April 13, 2023 EPAC

Link to Meeting Minutes

Project Title: [redacted] **Relay Upgrades Rev01**	**Project Number: CS00463**
Date Prepared: 7/13/2022; 03/16/2023 (Rev 01)	**Company: Eversource CT**
Organization: Asset Management	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - Relays**
Managing Organization: Transmission / Major Projects	**Schedule ID#: 80145114**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Estimated in service date: October 2023	**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: $1.841M	**Authorization Type: Full Funding - Revised - Pre-Construction**

[1] Executive Summary

Rev 01: The project full funding PAF was approved in PowerPlan on August 18, 2022, for $1.198M; however, based on received contractor bid's the construction and testing **service costs need to be updated construction and testing services were underestimated. We are seeking additional funding in the amount of $0.643M for a total capital request of $1.841M.**

As of February 28, 2023, approximately $535K has been spent to complete the Issued for Construction (IFC) phase design, and all of the pre-construction activities. The project is currently gearing up for construction to start at the end of April 2023, under CS00463 work order 80053196. Currently, this funding is needed to award the construction contract to the external vendor with the best evaluation.

This project at the [redacted] s[redacted], is seeking full funding in the amount of $1.198M to replace [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Project CS00463 initially received $125K of initial funding approved in PowerPlan on March 1, 2021. The Initial Funding request was revised and approved for $200K in PowerPlan on April 19, 2022. As of July 12, 2022, the initial funding has been spent to complete the preliminary design under CS00463 work order 20220427.

This project was presented to and approved by the Solution Design Committee (SDC) on June 22, 2022. This work was originally included in the Connecticut Electromechanical Relay Replacement Program CS00488 to replace all electromechanical relays and obsolete microprocessor relays still in service at all Eversource CT distribution substations. This work is being performed prior to the program due to specific known issues with the relays at Compo.

[2] Budget Revision Justification Overview

This supplement is to cover the cost changes from the estimate to actual costs provided in a quote from construction and testing/commissioning vendors.

There are no scope changes to the project. The supplement for an additional $0.643M will be to cover the cost overages to construct, test and commission the project. Attempts to have a definitive answer from the Estimating Department in regard to the $254K difference in construction and $270K difference in Testing/Commissioning costs were not successful.

Other distribution relay project research throughout the company has revealed the budget per relay from start the of a project to close-out should be approximately $225K. Meaning for this project having (9) nine relays the project budget should have been $2,025K, a difference of $827K from the actual budget. Please refer to the MCRU Ph2 PIS Analysis Per Relay information below:

MCRU Ph 2 - PIS Analysis Per Relay						
Example of 1487 Line	**Devon**	**E Devon**		**Line**	**Bus**	**Breaker**
Electrical line item	$14,540	$13,200		$14,540	$14,540	$13,194
Testing line item	$63,515	$63,515		$63,515	$20,600	$28,200
Engineering vendor	$22,000	$22,000		$22,000	$22,000	$22,000
LCE, CR, & ES est.	$64,900	$64,900		$64,900	$64,900	$64,900
Material	$11,055	$11,055		$11,055	$11,055	$11,055
Internal Resources	$14,000	$14,000		$14,000	$14,000	$14,000
OH (23% E&S assumed)	$42,928	$42,620		$42,928	$33,058	$34,496
Total PIS	$225,950	$224,352		$225,950	$174,748	$182,210

[3] PROJECT COSTS SUMMARY – NEW REQUEST VARIANCE

Note: Dollar values are in thousands:

Line item Category	Prior Authorized	New Total Request	Variance
1. ROW / Easements / Land Acquisition	$	$	$
2. Environmental Approvals / Permits	$	$	$
3. Outreach	$	$	$
4. Siting Approvals / Permits	$	$	$
5. Engineering / Design	$329	$329	$0
6. Materials (Eversource purchased)	$55	$83	$28
7. Construction (incl matl's by contractors)	$78	$332	$254
8. Testing / Commissioning	$115	$385	$270
9. Project Mgmt. Team	$51	$103	$52
10. Removals	$2	$8	$6
11. Other	$	$	$
12. Risks	$95	$70	**($25)**
SUBTOTAL DIRECTS W/ RISKS	**$724**	**$1,310**	**$585**
13. Indirects/Overhead	$390	$448	$58
14. AFUDC	$47	$47	$0
PROJECT TOTAL – BASELINE BUDGET	**$1,161**	**$1,805**	**$643**
15. Contingency	$36	$36	$0
TOTAL CAPITAL REQUEST	**$1,198**	**$1,841**	**$643**
16. Reimbursables/Customer Contribution	$	$	$
PROJECT TOTAL (LESS REIMBURSABLES)	**$1,198**	**$1,841**	**$643**

Line item Category	Prior Authorized	Actuals to Date	2023 to Go	2024	2025	2026
1. ROW / Easements / Land Acquisition	$	$	$	$	$	$
2. Environmental Approvals / Permits	$	$	$	$	$	$
3. Outreach	$	$	$	$	$	$
4. Siting Approvals / Permits	$	$	$	$	$	$
5. Engineering / Design	$329	$196	$133	$	$	$
6. Materials (Eversource purchased)	$55	$83	$0	$	$	$
7. Construction (incl materials by contractors)	$78	$4	$328	$	$	$
8. Testing / Commissioning	$115	$25	$360	$	$	$
9. Project Mgmt. Team	$51	$78	$25	$	$	$
10. Removals	$2	$	$8	$	$	$
11. Other	$	$	$	$	$	$
12. Risks	$95	$	$70	$	$	$
SUBTOTAL DIRECTS W/ RISKS	**$724**	**$386**	**$924**	**$**	**$**	**$**
13. Indirects/Overhead	$390	$155	$293	$	$	$
14. AFUDC	$47	$25	$22	$	$	$
PROJECT TOTAL – BASELINE BUDGET	**$1,161**	**$566**	**$1,239**	**$**	**$**	**$**
15. Contingency	$36	$0	$36	$	$	$
TOTAL CAPITAL REQUEST	**$1,198**	**$566**	**$1,275**	**$**	**$**	**$**
16. Reimbursables/Customer Contribution	$	$	$	$	$	$
PROJECT TOTAL (LESS REIMBURSABLES)	**$1,198**	**$566**	**$1,275**	**$**	**$**	**$**
O&M	$	$	$	$	$	$
TOTAL REQUEST	**$1,198**	**$566**	**$1,275**	**$**	**$**	**$**

Detail other costs, project risk items and their allocations:

Risk	Allocation
1. Asbestos in Relay Panel or Existing Control Room Removal	$20K
2. Severe Weather, Delays, OT	$30K
3. Overtime due to outage durations	$20K
4.	$
Total	$70K

Explain unique payment provisions, if applicable:

NA

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

NA

[4] VARIANCE JUSTIFICATION DETAIL

The reasons for the project authorization revision to include additional budget of $643K are summarized below.

1. **ROW / Easements / Land Acquisition: $0 –**.
2. **Environmental Approvals / Permits: $0 –**
3. **Outreach: $0 –**
4. **Siting Approvals / Permits: $0 –**
5. **Engineering / Design: $0 –**
6. **Materials (by Eversource): $28K -** Actual materials were $28K over estimated.
7. **Construction: $254K -** Quoted construction costs are $254K over estimated.
8. **Testing / Commissioning: $270K -** Quoted Testing/Commissioning costs are $270K over estimated.
9. **Project Management Team: $52K -** Actual and remaining estimated costs for Project Management Team are $52K over estimated.
10. **Removals: $6K -** Quoted Removals are $6K over estimated.
11. **Other: $0 –**
12. **Risk: ($25K) -** The design is complete so the design risk costs at $25K were removed.
13. **Indirects/Overhead: $58K -** Actual and remaining Indirects/Overhead costs are $58K over estimated.
14. **AFUDC: $0**
15. **Contingency: $0**
16. **Reimbursables/Customer Contribution: $0 –**

Total Supplement Request: $643K

[5] TECHNICAL JUSTIFICATION

Project Need, Objective and Justification

During maintenance testing, Field Engineering identified that a GEC KCGG140 relay on the [redacted]. This relay has been replaced under emergent work order 80068370. [redacted] There are currently [redacted] These relays are protecting the following equipment:

[redacted]

The differential protection for transformers 23K-1X and 23K-2X uses Westinghouse model HU [redacted]

[redacted]

The existing electronic relays being replaced require the approximately the same backup battery power as the new added relays. Preliminary battery calculations have been performed indicating the existing battery system is undersized for the station backup load per new Eversource battery standards. A backup battery system review will be implemented under a separate annual project and if required, an upgrade to the backup battery system will be done.

Project Scope

Scope of work includes the following:



A constructability review was performed on April 29, 2020 and again on May 18, 2022. The Constructability review form is included as Attachment C.

Substation Equipment

Station	Device Position /	Device Removals	Device Additions
[redacted]			

Background

[redacted]

[redacted]

[6] ALTERNATIVES CONSIDERED

This project was presented to and approved by the Solution Design Committee (SDC) on June 22, 2022.

Alternative #1

Do nothing and [redacted]

Alternative #2 (Preferred Solution)

[redacted]

[redacted] The planning grade estimated cost for this solution is $1.198M.

Rev 01 update to the preferred solution, requesting an additional $643K prior to starting construction since the quotation for construction, testing/commissioning was well over those projected estimated costs.

[7] PROJECT SCHEDULE

•	
•	
•	
Milestone	Scheduled Completion Date
IFR Approval	February 2021
Preliminary Design Completion	May 2022

SDC Approval (for applicable projects)	June 2022
Detailed Engineering Completion	July 2022
EPAC Full Funding Approval	August 2022 April 2023 (Rev 01)
IFC Completion	October 2022
Start of Construction (Outage of the 2X Back-up)	April 2023
Project In-Service Date (ISD)	October 2023

The original P6 schedule is included as Attachment B1; the updated P6 schedule is Attachment B2.

[8] Regulatory Approvals

N/A

[9] Risk and Risk Mitigation Plans

Contingency:

Contingency of $36K has been included for this project for unanticipated unknowns.

Risk Mitigation:

Risk	Mitigation
1. Asbestos in Relay Panel or Existing Control Room Removal	Verify presence or absence of asbestos before beginning work. Risk allocation is also included in the estimate.
2. Severe Weather, Delays, OT	Allow time in schedule for delays. Risk allocation is also included in the estimate.
3.Design Development*	Check in regularly with designers. Risk allocation is also included in the estimate.
4. Overtime due to outage durations	Minimize overtime where possible. Verify outage durations with construction and testing. Risk allocation is also included in the estimate.
5. SCLL conditions.	Temporary relay will be provided to protect from SCLL condition for each transformer during outages.

*IFC design has been completed and this risk allocation was not used.

[10] References

References
1. CS00463 - [redacted] Obsolete Distribution Relay Replacement – IFR, dated 2/19/2021
2. CS00463 [redacted] KCGG Rly Rplc-IFR-R1, dated 4/14/2022
3. CS00463 [redacted] KCGG Rly Rplc-SSF, dated 7/15/2022
4.
5.

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

Attachment	Included in Submittal?
A. Cost Estimates	YES
B. P6 Schedules	YES
C. Constructability Review	YES
D. System and Station One-Lines	NO

○ Project Checklist - Transmission & Substation Capital Project			
Project Name: [redacted] Relay Upgrades		**Project Number:** CS00463	
Facility Type: ☐BPS ☐BES ☐PTF ☐PTF non-regional ☐non-PTF ☐CIP ☒Distribution ☐General Plant			
PLANNING			
Is a NX-9 required?		Yes	
Is an ISO-NE PAC presentation required?		No	
ISO-NE Presentation Date (if completed):		Enter Date	
Cost in ISO-NE Presentation ($M) (if completed):		Enter Cost ($M)	
Is a PPA required?		No	
ISO-NE Approval Date (if completed):		Enter Date	
Is a TCA Application Required?		No	
TCA Submittal Date (if submitted):		Enter Date	
Cost in TCA Submittal ($M) (if submitted):		Enter Cost ($M)	
Enter ISO-NE RSP / Asset Condition ID, if assigned:		Enter ISO-NE ID	
PLANNING/PROTECTION & CONTROLS			
Are RAS/SPS/UVLs affected?		No	
OPERATIONS			
Outage Required?	☒ Primary Equipment (Power Transfer)	☒ Secondary Equipment (P&C only)	☐ Outage Not Required
Do SCLL Conditions Exist?		Yes	
Has an outage schedule been approved?		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?		No	
Is a Transient Over Voltage (TOV) analysis required?		No	

Project Checklist - Transmission & Substation Capital Project	
Project Name: [redacted] Relay Upgrades	**Project Number:** CS00463
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?	None
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

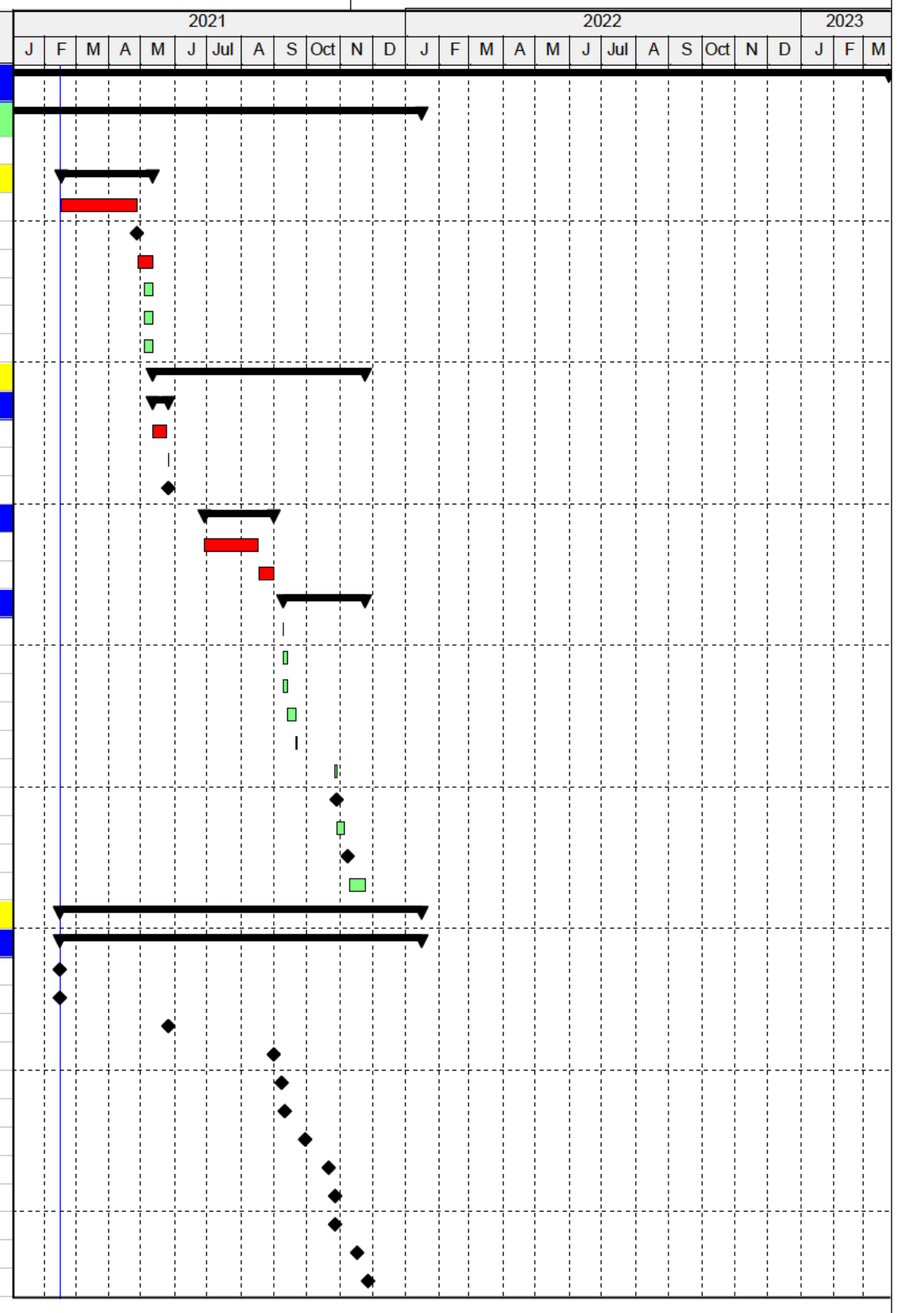
Line item Category	Prior Authorized	Actuals to Date	2023 to Go	2024	2025	2026	2027	Total
1. ROW / Easements / Land Acquisition	$	$	$	$	$	$	$	$
2. Environmental Approvals / Permits	$	$	$	$	$	$	$	$
3. Outreach	$	$	$	$	$	$	$	$
4. Siting Approvals / Permits	$	$	$	$	$	$	$	$
5. Engineering / Design	$329	$196	$133	$	$	$	$	$329
6. Materials (Eversource purchased)	$55	$83	$0	$	$	$	$	$83
7. Construction (incl materials by contractors)	$78	$4	$328	$	$	$	$	$332
8. Testing / Commissioning	$115	$25	$360	$	$	$	$	$385
9. Project Mgmt Team	$51	$78	$25	$	$	$	$	$103
10. Removals	$2	$	$8	$	$	$	$	$8
11. Other	$	$	$	$	$	$	$	$
12. Risks	$95	$	$70	$	$	$	$	$70
SUBTOTAL DIRECTS W/ RISKS	**$724**	**$386**	**$924**	**$**	**$**	**$**	**$**	**$1,310**
13. Indirects/Overhead	$390	$155	$293	$	$	$	$	$448
14. AFUDC	$47	$25	$22	$	$	$	$	$47
PROJECT TOTAL – BASELINE BUDGET	**$1,161**	**$566**	**$1,239**	**$**	**$**	**$**	**$**	**$1,805**
15. Contingency	$36	$0	$36	$	$	$	$	$36
TOTAL CAPITAL REQUEST	**$1,198**	**$566**	**$1,275**	**$**	**$**	**$**	**$**	**$1,841**
16. Reimbursables/Customer Contribution	$	$	$	$	$	$	$	$
PROJECT TOTAL (LESS REIMBURSABLES)	**$1,198**	**$566**	**$1,275**	**$**	**$**	**$**	**$**	**$1,841**
O&M	$	$	$	$	$	$	$	$
TOTAL REQUEST	**$1,198**	**$566**	**$1,275**	**$**	**$**	**$**	**$**	**$1,841**

EVERSOURCE ENERGY

[redacted] KCGG Relaying Replacement

Data Date 15-Feb-21
Current Date 05-Mar-21

Activity ID	Activity Name	Remaining Duration	Start	Finish	Predecessors	Successors
[redacted]	KCGG Relaying Replacement	528d	21-Dec-20 A	23-Mar-23		
	INITIALIZATION AND SCOPE DEVELOPEMENT	231d	21-Dec-20 A	15-Jan-22		
START10	SCHEDULE START MILESTONE (Compo)	0d	21-Dec-20 A			PI1210, A1010
	Initial Funding	61d	16-Feb-21 A	11-May-21		
PI1210	Project Initiator Develop & Submit Intitial Funding Request (Compo)	50d	16-Feb-21 A	26-Apr-21	START10	PI1310
PI1310	Initial EPAC Funding Request Approved (Compo)	0d		27-Apr-21	PI1210	PI1410, PI1630
PI1630	Initial Funding EPAC / PowerPlan Approval (Compo)	10d	28-Apr-21	11-May-21	PI1310	PI1410, PE1400
PI1410	Assign Project Manager (Compo)	5d	05-May-21	11-May-21	PI1310, PI1630	PI1620, PI1510
PI1510	Assign Scheduler (Compo)	5d	05-May-21	11-May-21	PI1410	
PI1620	Assign Cost Analyst (Compo)	5d	05-May-21	11-May-21	PI1410	
	Project Initiation	135d	12-May-21	23-Nov-21		
	Engineering Scope Development	11d	12-May-21	26-May-21		
PE1400	Develop P&C Conceptual Engineering Scope Design in Accordance with Deliverables (	10d	12-May-21	25-May-21	PI1630	PE1710
PE1710	Create Engineering Scope Document (Compo)	1d	26-May-21	26-May-21	PE1400	PE1720
PE1720	Engineering Scope Document Complete (Compo)	0d		26-May-21	PE1710	AT3251, 3370
	P&C Engineering Preliminary Design	45d	29-Jun-21	31-Aug-21		
DE2090	Vendor Engineer Develop P&C Preliminary Design (Compo)	35d	29-Jun-21	17-Aug-21	TMP1220	DE2100
DE2100	ES Engineering Review P&C Preliminary Design (Compo)	10d	18-Aug-21	31-Aug-21	DE2090	A1010, AT3271, NX9A-EM23
	EPAC Full Funding	52d	09-Sep-21	23-Nov-21		
DE1910	Conduct Detail Constructability Walk Down (Compo)	1d	09-Sep-21	09-Sep-21	DE2100	DE1710
DE1710	Conduct Initial Risk Management & SCLL Review (Project Initiator & PM) (Compo)	2d	10-Sep-21	13-Sep-21	DE1910	DE2010
DE2010	Project Constructability Review Complete (Compo)	2d	10-Sep-21	13-Sep-21	DE1710	DE1610
DE1610	Create Planning Grade Estimate (+/-25% Full Funding) (Compo)	5d	14-Sep-21	20-Sep-21	DE2010	FF1010, PAFF2010
PAFF20	Submit Full Funding PAF for Internal Review (Compo)	2d	21-Sep-21	22-Sep-21	DE1610	OP1010, PC1330, PAFF2120
PAFF21	Incorporate Internal Review Comments & Submit Full Funding PAF to EPAC for Review	1d	28-Oct-21	28-Oct-21	PC1120, PAFF2010	PAFF2210, PAFF2130
PAFF21	Full Funding Approval EPAC Meeting (Compo)	0d		28-Oct-21	PAFF2120	PAFF2210
PAFF22	Incorporate EPAC Full Funding PAF Review Comments (Compo)	5d	29-Oct-21	04-Nov-21	PAFF2120, PAFF2130	FF1010, FF1620
FF1620	Full Funding Approval (Compo)	0d		08-Nov-21	PAFF2210	FF1010
FF1010	Full Funding PowerPlan Approval (Compo)	10d	09-Nov-21	23-Nov-21	DE1610, PAFF2210, FF1620	A1140
	T-Minus Milestones	334d	15-Feb-21	15-Jan-22		
	T-Minus Milestones "A" Group	334d	15-Feb-21	15-Jan-22		
AT3281	N/R - T-18 NX-9 Rating to LCC + ISO for New 'T' Equipment (NC=Per Procedure/120 c	0d		15-Feb-21		AT3381
AT3221	N/R - A-T-04.08 TCA (12C) Application Submitted (Compo)	0d		15-Feb-21		AT3381
AT3251	Engr Project Scoping Document Issued (Scope Lockdown) ** Re-instated **	0d		26-May-21	PE1720	AT3381
AT3271	30% Design / Engineering Completed	0d		31-Aug-21	DE2100	AT3381
AT3241	A-T-24.04 Determine / Assign Commissioning Engineer	0d		07-Sep-21	A22590	AT3381
AT3261	Commissioning Plan Complete	0d		10-Sep-21	A22620	AT3381
AT3321	T-09 Protection System Data - OP-24 Requirement (Tie to First Outage Milestone Phas	0d		29-Sep-21	OP1030	AT3381
AT3311	All Final Relay Protective Settings Issued	0d		21-Oct-21	PC1410	AT3381
AT3301	70% Design / Engineering Completed	0d		27-Oct-21	PC1120	AT3381
AT3331	A-T-18.01 All Firm TOA Applications Due to LCC	0d		28-Oct-21	A1250, A22640	AT3381
AT3291	T-03 NX-9 Ratings to LCC & ISO for Existing Equipment (EM=Per Procedure/15 busine	0d		16-Nov-21	NX9A-EM310	AT3381
AT0805I	IFC - P&C w/BOM	0d		26-Nov-21	PC1330	AT3381



Actual Work Critical Remaining Work Summary
Remaining Work Milestone

TASK filter: All Activities

© Oracle Corporation

Activity ID	Activity Name	Remaining Duration	Start	Finish	Predecessors	Successors
AT0805I	IFC - Electrical (AG) w/BOM	0d		26-Nov-21	PC1330	AT3381
AT3341	P/C Description / Draft OI Issued To LCC	0d		26-Nov-21	PC1330	AT3381
AT0805I	IFC - Communications w/BOM	0d		26-Nov-21	PC1330	AT3381
AT3231	A-T-02.03 Go / No-Go [CAN] Construction Authorization Notice Form Complete	0d		10-Dec-21	A1170, PC1330	AT3381
AT3371	Units of Property (Items) Issued to Plant Accounting	0d		30-Dec-21	A22020	AT3381
AT3361	A-T-08.14 Construction Contracts / PSA in Place	0d		30-Dec-21	A22020	AT3381
AT3351	A-T-04.01 Final Material Receipt Review Completed *ES Purchased*	0d		11-Jan-22	400, 390, 460	AT3381
AT3381	A-T-00 - Start of Construction (Compo)	0d	15-Jan-22*		AT3321, AT3291, AT3231, A1	A22540, CSM
ENGINEERING & DESIGN		456d	27-May-21	23-Mar-23		
Engineering Services Staffing		22d	27-May-21	28-Jun-21		
3370	Decision Required Regarding Engineering Staffing (ES, COC, BID) (Compo)	1d	27-May-21	27-May-21	PE1720	TMP1140
EOC - Engineer of Choice Process		21d	28-May-21	28-Jun-21		
TMP114	Engineering of Choice (EOC) - Provide RFP to Single Vendor (Compo)	5d	28-May-21	04-Jun-21	3370	TMP1150
TMP115	Engineering of Choice (EOC) - Vendor Responds with Proposal (Compo)	5d	07-Jun-21	11-Jun-21	TMP1140	TMP1200
TMP120	Engineering of Choice (EOC) - DR Prepared by Project Engineer & Project Controls (Cc	5d	14-Jun-21	18-Jun-21	TMP1150	TMP1180
TMP118	Engineering of Choice (EOC) - EOC Committee Reviews at Monthly Meeting & Approve	1d	21-Jun-21	21-Jun-21	TMP1200	TMP1220
TMP122	Engineering of Choice (EOC) - PO Issued for Vendor - Preliminary Design Effort (Compe	5d	22-Jun-21	28-Jun-21	TMP1180	DE2090
P&C Engineering		59d	01-Sep-21	26-Nov-21		
OP1010	P&C Validation of PAF's Initial Assessment Go/No-Go (Compo)	1d	22-Sep-21	22-Sep-21	PAFF2010	OP1020
OP1020	P&C Updates OP-24 Appendix B (Compo)	4d	23-Sep-21	28-Sep-21	OP1010	OP1030
OP1030	P&C Submits OP-24 Appendix B to ISO-NE (Compo)	1d	29-Sep-21	29-Sep-21	OP1020	AT3321
CSD1030	PE Initiate CASCADE Forms (Appendix A) for Construction Package (Compo)	5d	19-Nov-21	26-Nov-21	PC1330, PC1120	
P&C Engineering Detail Design		39d	01-Sep-21	27-Oct-21		
PC1110	Vendor Engineer Develop P&C Detail Design (Compo)	29d	01-Sep-21	13-Oct-21	DE2100	PC1340, PC1120, PC1410
PC1120	ES Engineering Review P&C Detail Design (Compo)	10d	14-Oct-21	27-Oct-21	PC1110	A1250, AT3301, PAFF2120, A
P&C Engineering IFC Design		59d	01-Sep-21	26-Nov-21		
P&C Design Package		59d	01-Sep-21	26-Nov-21		
PC1340	Vendor Engineer Develop IFR Relay Settings (Compo)	10d	01-Sep-21	15-Sep-21	PC1110	PC1350
PC1350	ES Engineering Review IFR Relay Settings (Compo)	10d	16-Sep-21	29-Sep-21	PC1340	PC1410
PC1320	Vendor Engineer Develop P&C IFC (Compo)	10d	28-Oct-21	10-Nov-21	PC1120	PC1330
PC1330	ES Engineering Review P&C IFC (Compo)	10d	12-Nov-21	26-Nov-21	PAFF2010, PC1320	A1170, AT3231, AT0805E10,
Relay Settings		15d	30-Sep-21	21-Oct-21		
PC1410	Complete IFR Relay Settings (Compo)	15d	30-Sep-21	21-Oct-21	PC1110, PC1350	AT3311
Electrical Engineering NX-9		389d	01-Sep-21	23-Mar-23		
Substation NX-9		389d	01-Sep-21	23-Mar-23		
NX9A-E	PE Updates 1-Line Nomenclature Dwgs & Complete PE Checklist M7-EN-3006.2 - e-m	5d	01-Sep-21	08-Sep-21	DE2100	NX9A-EM220
NX9A-E	LTRC Reviews and Makes "GO / NO-GO" Decision for 1-Line Nomenclature (Compo)	5d	09-Sep-21	15-Sep-21	NX9A-EM230	NX9A-EM320
NX9A-E	LTRC Submits1-Line Nomenclature to TRC (Compo)	5d	16-Sep-21	22-Sep-21	NX9A-EM220	NX9A-EM330
NX9A-E	LTRC Reviews and Makes "GO / NO-GO" Decision for Thermal Ratings (Compo)	5d	23-Sep-21	29-Sep-21	NX9A-EM320	NX9A-EM260
NX9A-E	LTRC Requests P&C Checklist (Compo)	5d	30-Sep-21	06-Oct-21	NX9A-EM330	NX9A-EM240
NX9A-E	P&C Develops and Provides LTRC with P&C Checklist (M7-EN-3006.1) (Compo)	5d	07-Oct-21	14-Oct-21	NX9A-EM260	NX9A-EM300
NX9A-E	LTRC Reviews and Sends Thermal Rating Data for TRC Review (Compo)	5d	15-Oct-21	21-Oct-21	NX9A-EM240	NX9A-EM290
NX9A-E	TRC Reviews and Approves Thermal Rating Data (Compo)	5d	22-Oct-21	28-Oct-21	NX9A-EM300	NX9A-EM280
NX9A-E	LTRC Sends Thermal Rating Data for Approval & Submit to NURS (Compo)	5d	29-Oct-21	04-Nov-21	NX9A-EM290	NX9A-EM270



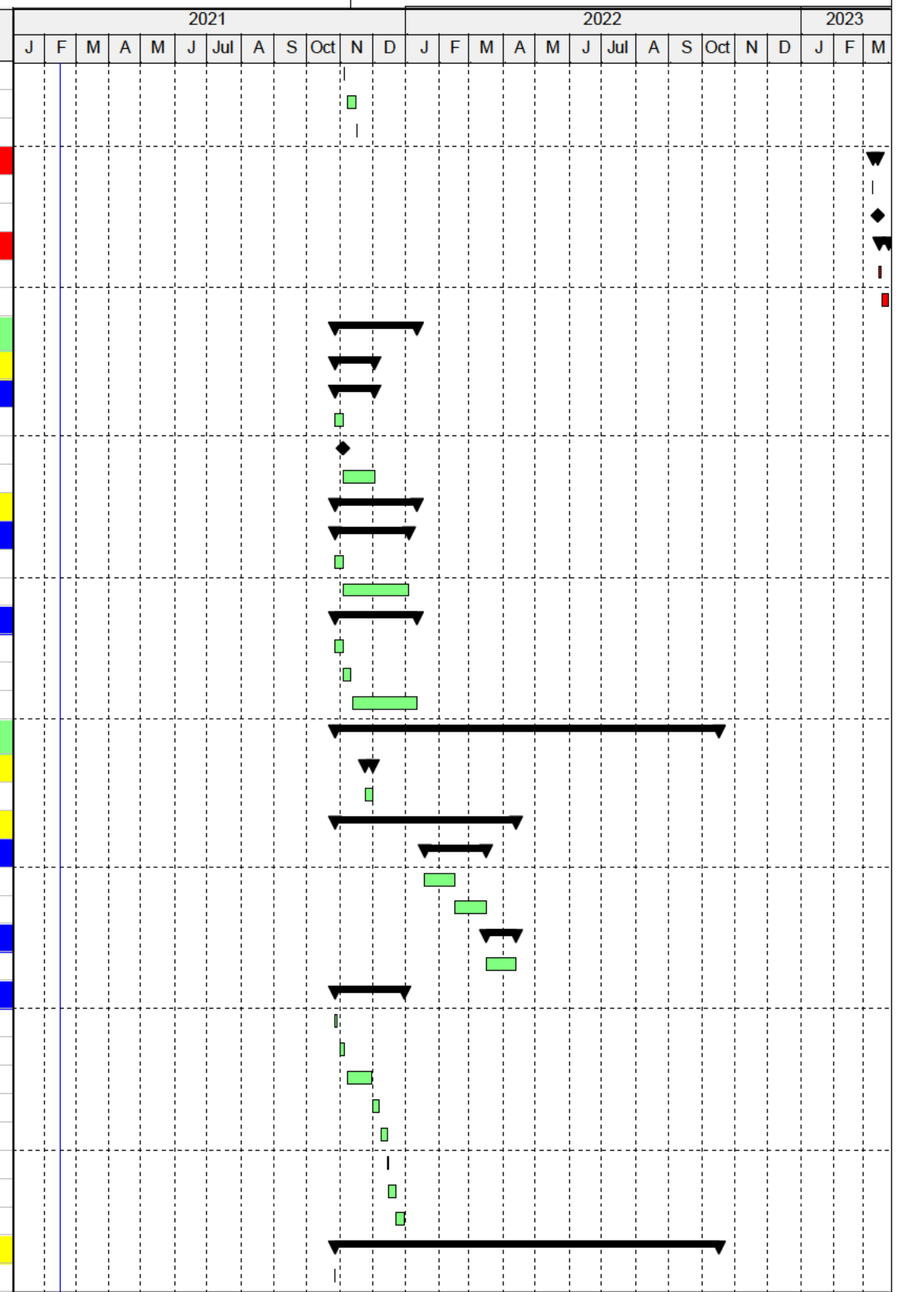
© Oracle Corporation

EVERSOURCE ENERGY

[redacted] KCGG Relaying Replacement

Data Date 15-Feb-21
Current Date 05-Mar-21

Activity ID	Activity Name	Remaining Duration	Start	Finish	Predecessors	Successors
NX9A-E	Scheduler @ NURS email "Submitted for PP Review" - Updates NURS with DOE (Corr	1d	05-Nov-21	05-Nov-21	NX9A-EM280	NX9A-EM250
NX9A-E	TRC Review and Submit NX-9 Data to LCC + ISO-NE for S/S Thermal Rating (Compo	5d	08-Nov-21	15-Nov-21	NX9A-EM270	NX9A-EM310
NX9A-E	Scheduler @ NURS email "Submitted for DOE Monitoring" - Updates T-3, EquipDOE, F	1d	16-Nov-21	16-Nov-21	NX9A-EM250	AT3291
Substation - NX-9 Pre NX9-DOE		3d	09-Mar-23	13-Mar-23		
NX9A1	Scheduler - Send Email for 48Hrs Notification before DOE. (Compo)	1d	09-Mar-23	09-Mar-23		TIE_45
TIE_45	Tie (FF) to Appropriate activity that puts the equipment in service & Add NX9-DOE code	0d		13-Mar-23	NX9A120	NX9FINAL80
Substation - NX-9 Post NX9-DOE/ISD		8d	14-Mar-23	23-Mar-23		
NX9FIN	Review + Affirm Accuracy of NX-9 for ISO Submission (Tie after Equip DOE or ISD) (Co	3d	14-Mar-23	16-Mar-23	TIE_45	NX9FINAL70
NX9FIN	[If Required] Receive + Issue Final Affirmed NX-9 Data to NURS (Compo)	5d	17-Mar-23	23-Mar-23	NX9FINAL80	
MATERIAL		50d	28-Oct-21	11-Jan-22		
Electrial Material		25d	28-Oct-21	03-Dec-21		
Electrical Material		25d	28-Oct-21	03-Dec-21		
450	Issue DR for Cable / Wire (Compo)	5d	28-Oct-21	03-Nov-21	PC1120	460, 480
480	Above Grade Material Ordered (Compo)	0d		03-Nov-21	450	A22540
460	Issue PO and Procure Cable / Wire (Compo)	20d	04-Nov-21	03-Dec-21	450	AT3351
P&C Material		50d	28-Oct-21	11-Jan-22		
Relays		45d	28-Oct-21	04-Jan-22		
380	Issue DR for Microprocessor Relays (stock coded) (Compo)	5d	28-Oct-21	03-Nov-21	PC1120	390
390	Issue PO and Procure Microprocessor Relays (stock coded) (Compo)	40d	04-Nov-21	04-Jan-22	380	AT3351
Panels - Installed Pre-Wired Relays		50d	28-Oct-21	11-Jan-22		
420	Prepare & Approve SPEC (approx 4 weeks) (Compo)	5d	28-Oct-21	03-Nov-21	PC1120	410
410	Issue DR for Relay Panel (Compo)	5d	04-Nov-21	10-Nov-21	420	400
400	Issue PO and Procure Relay Panel (approx 16 weeks) (Compo)	40d	12-Nov-21	11-Jan-22	410	AT3351
CONSTRUCTION		243d	28-Oct-21	17-Oct-22		
CONSTRUCTION - P&C		5d	24-Nov-21	01-Dec-21		
A1140	Construction - P&C Implement Relay Settings	5d	24-Nov-21	01-Dec-21	FF1010	CFM
Electrical Construction		113d	28-Oct-21	12-Apr-22		
Equipment		40d	18-Jan-22	15-Mar-22		
A22540	Remove Existing Relays (Compo)	20d	18-Jan-22	14-Feb-22	AT3381, 480, A22020	A22550
A22550	Install New Equipment (Compo)	20d	15-Feb-22	15-Mar-22	A22540	A22570
Wiring / Terminating		20d	16-Mar-22	12-Apr-22		
A22570	Install Wiring (Compo)	20d	16-Mar-22	12-Apr-22	A22550	ISD
Electrical Construction Service/Contracts		43d	28-Oct-21	30-Dec-21		
A21950	Prepare Specifications / Scope of Work (Electrical Contractor) (Compo)	2d	28-Oct-21	29-Oct-21	PC1120	A21960
A21960	Prepare and Issue RFP (Electrical Contractor) (Compo)	5d	01-Nov-21	05-Nov-21	A21950	A21970
A21970	Bid Period (Electrical Contractor) (Compo)	15d	08-Nov-21	30-Nov-21	A21960	A21980
A21980	Evaluate Bids and Develop Short List (Electrical Contractor) (Compo)	5d	01-Dec-21	07-Dec-21	A21970	A21990
A21990	Negotiate Contract (Electrical Contractor) (Compo)	5d	08-Dec-21	14-Dec-21	A21980	A22000, A22010
A22000	Award contracts for Civil construction and testing services (Electrical Contractor) (Compc	1d	15-Dec-21	15-Dec-21	A21990	A22010
A22010	Issue DR (Electrical Contractor) (Compo)	5d	16-Dec-21	22-Dec-21	A22000, A21990	A22020
A22020	Issue PO (Electrical Contractor) (Compo)	5d	23-Dec-21	30-Dec-21	A22010	AT3361, AT3371, A22540
CONSTRUCTION - CONST.REP TASKS		243d	28-Oct-21	17-Oct-22		
A1250	Construction Rep SUBMIT OUTAGE REQUESTS for NON-transformer equipment (4 w	0d	28-Oct-21	28-Oct-21	PC1120	AT3331



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

TASK filter: All Activities

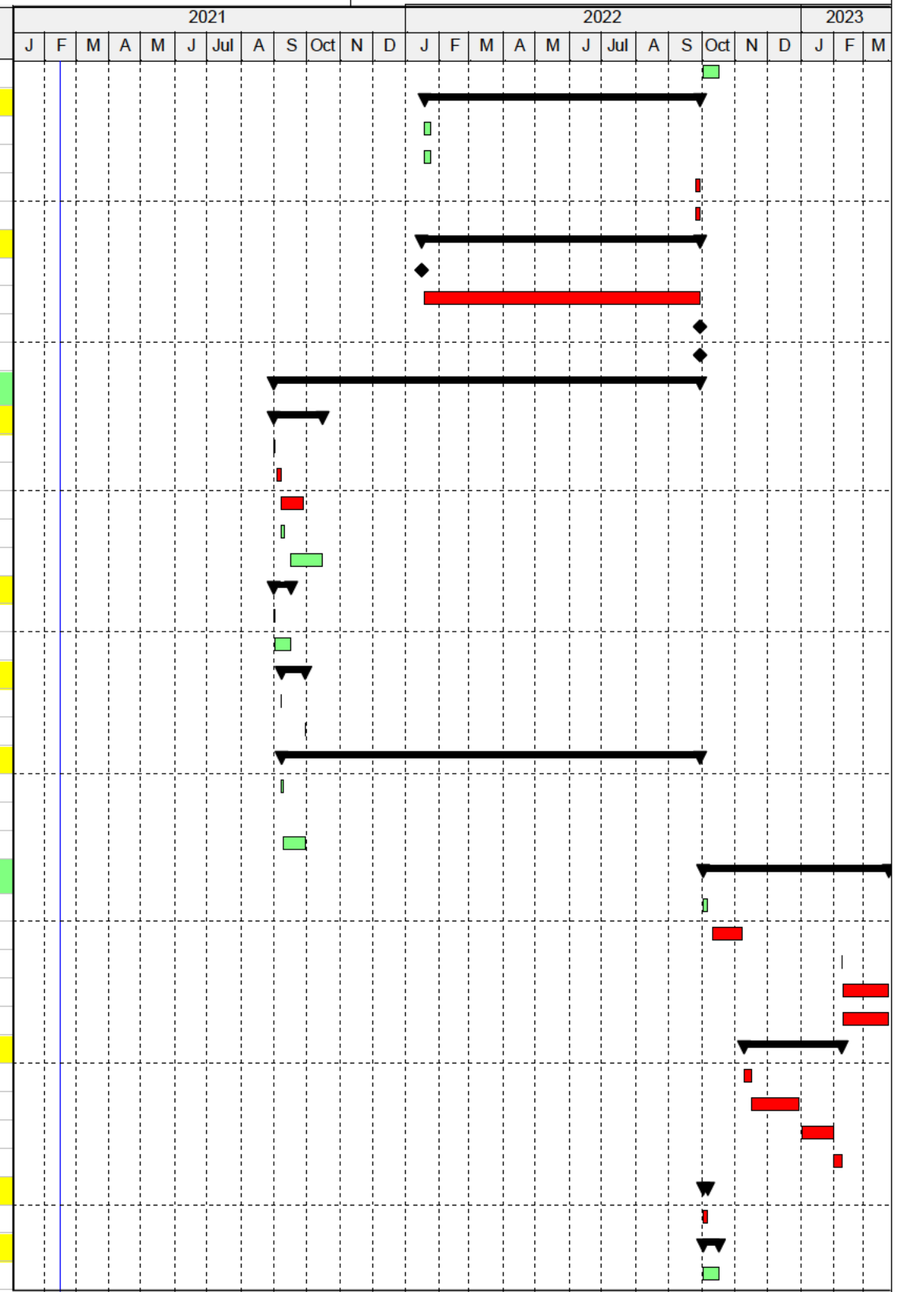
© Oracle Corporation

EVERSOURCE ENERGY

[redacted] KCGG Relaying Replacement

Data Date 15-Feb-21
Current Date 05-Mar-21

Activity ID	Activity Name	Remaining Duration	Start	Finish	Predecessors	Successors
A1260	Construction Rep Finalize CASCADE Forms (within 14 days folloiwng ISD) (Compo)	10d	03-Oct-22	17-Oct-22	CFM	
CONSTRUCTION RESOURCE TRACKING		180d	18-Jan-22	30-Sep-22		
ConRep-S	RESOURCE ONLY ACTIVITY - CONSTRUCTION - CONSTRUCTION REP (Compo)	5d	18-Jan-22	24-Jan-22	CSM	CFM
CONSTel	RESOURCE ONLY ACTIVITY - CONSTRUCTION - ELECTRICIAN (Compo)	5d	18-Jan-22	24-Jan-22	CSM	CFM
A1080	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH IN (Compo)	5d	26-Sep-22	30-Sep-22	TOA-Const70	CFM
A1070	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH OUT (Compo)	5d	26-Sep-22	30-Sep-22	TOA-Const70	CFM
CONSTRUCTION OUTAGES		180d	15-Jan-22	30-Sep-22		
CSM	Construction Start Milestone (Compo)	0d	15-Jan-22		AT3381	ConRep-S, CONSTelec, TOA
TOA-Con	OUTAGE / General Construction Work - Relays (Compo)	180d	18-Jan-22	30-Sep-22	CSM	CFM, A1080, A1070
CFM	Construction Finish Milestone (Compo)	0d		30-Sep-22	TOA-Const70, ConRep-S, A	TD1100, A1260, ISD
ISD	EQUIPMENT IN SERVICE DATE (requires FOOB constraint) (Compo)	0d		30-Sep-22	A22570, CFM	1270, 1040, 1030, 1020, 111
TEST AND COMMISSION		272d	01-Sep-21	30-Sep-22		
LCE PLANNING		31d	01-Sep-21	15-Oct-21		
A22580	PM to Request Lead Commissioning Engineer GO/NO-GO {Preliminary design is often	2d	01-Sep-21	02-Sep-21	DE2100	A22590
A22590	Assign Lead Commissioning Engineer (Compo)	2d	03-Sep-21	07-Sep-21	A22580	AT3241, A22630, A22670, A2
A22610	Evaluate Drawings and Plan for Construction Outages (Compo)	15d	08-Sep-21	28-Sep-21	A22590	A22640
A22620	Review and Approve Vendor's Test and Commissioning Plan (Compo)	3d	08-Sep-21	10-Sep-21	A22590	AT3261, A22650
A22600	Develop Test and Commissioning (Compo)	20d	17-Sep-21	15-Oct-21	A3250	
TEST - SERVICES STAFFING DECISION		11d	01-Sep-21	16-Sep-21		
A1010	STAFFING DECISION: EVERSOURCE OR OUTSOURCE BID/COC (Compo)	1d	01-Sep-21	01-Sep-21	DE2100, START10	A3250
A3250	Procure Testing Vendor {predecessor to test planning} (Compo)	10d	02-Sep-21	16-Sep-21	A1010	A22600
LCE AUTHORIZATION		16d	08-Sep-21	29-Sep-21		
A22630	Review and approve Outage Sequence Document (Sign-off) (Compo)	1d	08-Sep-21	08-Sep-21	A22590	A22650
A22640	LCE Review TOA / Applications (Pred=TOA#,Dwgs and Const Plan, has T18.01 succes	1d	29-Sep-21	29-Sep-21	A22610, A22590	AT3331
TEST ACTIVITIES		268d	08-Sep-21	30-Sep-22		
A22670	Mobilize Commissioning Engineer and Testing Vendor Prior to Construction (Compo)	2d	08-Sep-21	09-Sep-21	A22590	A22650, A22660
A22650	Oversight of Testing Contractor (LOE, from start of mobilization up to execution of the te	267d	09-Sep-21	30-Sep-22	A22670, A22630, A22620	CFM
A22660	Support Project/Testing & Execute test plan (Compo)	15d	10-Sep-21	30-Sep-21	A22670	CFM
PROJECT CLOSE OUT		117d	03-Oct-22	23-Mar-23		
TD1100	Complete TD-707 Turnover Document / Forward to SOC & Mailing List (Compo)	5d	03-Oct-22	07-Oct-22	CFM	PC8500, EV1510
PC8000	Prepare P&C Field Mark Ups (Compo)	21d	11-Oct-22	08-Nov-22	3290	PC8510
PM1110	PM to Document Electrical As-Built Drawings Complete (P&C) (Compo)	1d	08-Feb-23	08-Feb-23	PC8540	EV1510, PC8500
EV1510	FE Files Substation Design Drawings at Station (Compo)	30d	09-Feb-23	23-Mar-23	TD1100, PM1110	FINISH
PC8500	FE Files P&C Design Drawings at Station (Compo)	30d	09-Feb-23	23-Mar-23	TD1100, PC8540, PM1110	FINISH
P&C As-Builts		60d	09-Nov-22	07-Feb-23		
PC8510	Eversource Engineering Prepares & Sends Electrical Field Mark Up Packge to Vendor ((	5d	09-Nov-22	16-Nov-22	PC8000	PC8520
PC8520	Vendor Engineering Verifies P&C Mark Ups and Updates As-Built Drawing Package. Su	30d	17-Nov-22	30-Dec-22	PC8510	PC8530
PC8530	Eversource Engineering Verifies Quality of Submitted P&C Drawings (Compo)	20d	03-Jan-23	31-Jan-23	PC8520	PC8540
PC8540	P&C Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings tc	5d	01-Feb-23	07-Feb-23	PC8530	PC8500, PM1110
Test Closout		5d	03-Oct-22	07-Oct-22		
3290	LCE Review Test Data and Issue Commissioning Report (tie to As-Built submit Print act	5d	03-Oct-22	07-Oct-22	ISD	PC8000
SITE RESTORATION CLOSEOUT		10d	03-Oct-22	17-Oct-22		
1110	Restore / Remediate Site (Compo)	10d	03-Oct-22	17-Oct-22	ISD	FINISH



Actual Work Critical Remaining Work Summary
Remaining Work Milestone

TASK filter: All Activities

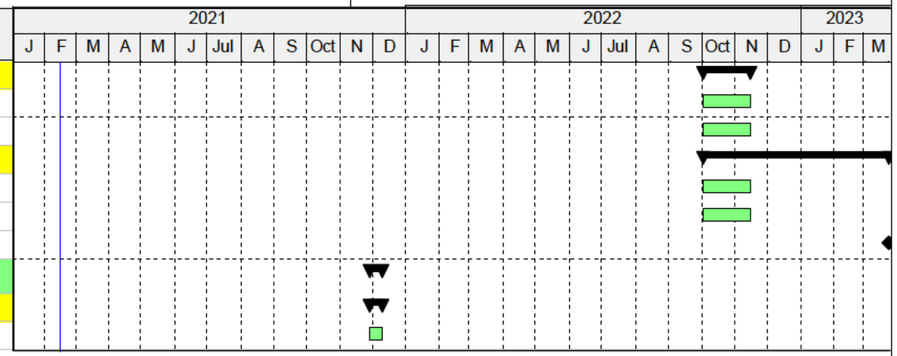
© Oracle Corporation

EVERSOURCE ENERGY

[redacted] KCGG Relaying Replacement

Data Date 15-Feb-21
Current Date 05-Mar-21

Activity ID	Activity Name	Remaining Duration	Start	Finish	Predecessors	Successors
MATERIAL, EQUIPMENT, COST, AND ASSET MANAGEMENT CLOSEOUT		30d	03-Oct-22	15-Nov-22		
1020	Cost Analyst Prepares FINAL Units of Property (Compo)	30d	03-Oct-22	15-Nov-22	ISD	FINISH
1030	Asset Management Complete Asset Update(s) in CASCADE (Compo)	30d	03-Oct-22	15-Nov-22	ISD	FINISH
PROJECT MANAGEMENT CLOSEOUT		117d	03-Oct-22	23-Mar-23		
1040	PM Prepares Closeout Documentation, Lessons Learned Meeting, etc. (Compo)	30d	03-Oct-22	15-Nov-22	ISD	FINISH
1270	Prepare TD-707 Document (Compo)	30d	03-Oct-22	15-Nov-22	ISD	FINISH
FINISH	Project / Work Order Complete (FINAL SCHEDULE TASK/MILESTONE) (Compo)	0d		23-Mar-23	PC8500, EV1510, 1030, 127	
OVERHEAD / INDIRECTS		10d	29-Nov-21	10-Dec-21		
PROJECT MANAGEMENT		10d	29-Nov-21	10-Dec-21		
A1170	Prepare CAN (Construction Authorization Notice) (Compo)	10d	29-Nov-21	10-Dec-21	PC1330	AT3231



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

TASK filter: All Activities

© Oracle Corporation

Activity ID	Activity Name	Rem Dur	ES	Actual Start	EF	Actual Finish
80145114 [redacted] KCGG Relaying Replacement (CS00463 / 80145114)						
[redacted] KCGG Relaying Replacement (CS00463 / 80145114)						
PT1000	Project Timeline	254	01-Dec-20 08:00 A	01-Dec-20 08:00	27-Mar-24 16:00	
PROJECT PLANNING & FUNDING						
START10	SCHEDULE START MILESTONE (Compo)	0	21-Dec-20 00:00 A	21-Dec-20 00:00		
PPF1000	Project Planning & Funding	137	21-Dec-20 00:00 A	21-Dec-20 00:00	06-Oct-23 16:00	
T-Minus Milestones						
Electrical T-Milestones						
AT3001	Engr Project Scoping Document Issued (Scope Lockdown) ** Re-instated **	0			26-May-21 16:00 A	26-May-21 16:00
AT2605	Preliminary Design / Engineering Completed (Preliminary)	0			10-May-22 16:00 A	10-May-22 16:00
AT0409	T-04 All Firm TOA Applications Due to LCC	0			06-Jun-22 16:00 A	06-Jun-22 16:00
AT1811	Detail Design / Engineering Completed (Detail) - Electrical	0			25-Jul-22 08:00 A	25-Jul-22 08:00
AT0805E	IFC - Electrical w/BOM	0			26-Aug-22 16:00 A	26-Aug-22 16:00
AT0401	Final Material Receipt Review Completed *ES Purchased*	0			22-Mar-23 16:00 A	22-Mar-23 16:00
AT00	T-00 - Start of Construction (Compo) (Electrical)	0	01-Apr-23 08:00*			
AT0814	Construction Contracts / PSA in Place	0			03-Apr-23 16:00	
AT0203	Go / No-Go [CAN] Construction Authorization Notice Form Complete	0			19-Apr-23 16:00	
AT0301	T-03 NX-9 Ratings to LCC & ISO for Existing Equipment (EM=Per Procedure/15 business days before DOE)	0			15-May-23 16:00*	
P&C T-Minus Milestones						
BT2605	Preliminary Design / Engineering Completed (Preliminary)	0			10-May-22 16:00 A	10-May-22 16:00
BT1202	P/C Description / Draft OI Issued To LCC	0			25-Jul-22 08:00 A	25-Jul-22 08:00
BT1811	Detail Design / Engineering Completed (Detail)	0			25-Jul-22 08:00 A	25-Jul-22 08:00
BT0805P	IFC - P&C w/BOM	0			02-Sep-22 16:00 A	02-Sep-22 16:00

TASK filter: All Activities

(c) Primavera Systems, Inc.

Activity ID	Activity Name	Rem Dur	ES	Actual Start	EF	Actual Finish
BT0404	All Final Relay Protective Settings Issued	0			30-Sep-22 16:00 A	30-Sep-22 16:00
BT0401	Final Material Receipt Review Completed *ES Purchased*	0			05-Oct-22 16:00 A	05-Oct-22 16:00
BT00	T-00 - Start of Construction (Compo) - P&C	0	01-Apr-23 08:00*			
BT0203	Go / No-Go [CAN] Construction Authorization Notice Form Complete	0			19-Apr-23 16:00	
BT0602	Units of Property (Items) Issued to Plant Accounting	0			06-Oct-23 16:00	
Project Funding						
Initial Funding						
PI1210	Project Initiator Develop & Submit Intitial Funding Request (Compo)	0	16-Feb-21 08:00 A	16-Feb-21 08:00	26-Apr-21 16:00 A	26-Apr-21 16:00
PI1310	Initial EPAC Funding Request Approved (Compo)	0			27-Apr-21 16:00 A	27-Apr-21 16:00
PI1630	Initial Funding EPAC / PowerPlan Approval (Compo)	0	28-Apr-21 08:00 A	28-Apr-21 08:00	11-May-21 16:00 A	11-May-21 16:00
PI1410	Assign Project Manager (Compo)	0	05-May-21 08:00 A	05-May-21 08:00	11-May-21 16:00 A	11-May-21 16:00
PI1510	Assign Scheduler (Compo)	0	05-May-21 08:00 A	05-May-21 08:00	11-May-21 16:00 A	11-May-21 16:00
PI1620	Assign Cost Analyst (Compo)	0	05-May-21 08:00 A	05-May-21 08:00	11-May-21 16:00 A	11-May-21 16:00
Partial Funding						
EPAC - PF						
A22840	Request Engineering Resource Assignments	0	22-Feb-22 08:00 A	22-Feb-22 08:00	28-Feb-22 16:00 A	28-Feb-22 16:00
Full Funding						
EPAC - FF						
DE1910	Conduct Detail Constructability Walk Down (Compo)	0	27-Apr-22 08:00 A	27-Apr-22 08:00	27-Apr-22 16:00 A	27-Apr-22 16:00
DE1710	Conduct Initial Risk Management & SCLL Review (Project Initiator & PM) (Compo)	0	28-Apr-22 08:00 A	28-Apr-22 08:00	31-May-22 16:00 A	31-May-22 16:00
DE2010	Project Constructability Review Complete (Compo)	0	29-Apr-22 08:00 A	29-Apr-22 08:00	29-Apr-22 16:00 A	29-Apr-22 16:00
DE1610	Create Planning Grade Estimate (+/-25% Full Funding) (Compo)	0	09-May-22 08:00 A	09-May-22 08:00	03-Jun-22 16:00 A	03-Jun-22 16:00
PAFF2010	Submit Full Funding PAF for Internal Review (Compo)	0	23-Jun-22 08:00 A	23-Jun-22 08:00	24-Jun-22 16:00 A	24-Jun-22 16:00

(c) Primavera Systems, Inc.

Activity ID	Activity Name	Rem Dur	ES	Actual Start	EF	Actual Finish
PAFF2120	Incorporate Internal Review Comments - including battery calculations - Submit Full Funding PAF to EPAC (Compo)	0	27-Jun-22 08:00 A	27-Jun-22 08:00	25-Jul-22 16:00 A	25-Jul-22 16:00
FF1010	Full Funding PowerPlan Approval (Compo)	0	01-Aug-22 08:00 A	01-Aug-22 08:00	03-Aug-22 16:00 A	03-Aug-22 16:00
PAFF2210	Incorporate EPAC Full Funding PAF Review Comments (Compo)	0	01-Aug-22 08:00 A	01-Aug-22 08:00	03-Aug-22 16:00 A	03-Aug-22 16:00
FF1620	Full Funding Approval (Compo)	0			03-Aug-22 16:00 A	03-Aug-22 16:00
PAFF2130	Full Funding Approval EPAC Meeting (Compo)	0			03-Aug-22 16:00 A	03-Aug-22 16:00
Electrical Conceptual & Preliminary Engineering Design						
PE1720	Engineering Scope Document Complete (Compo)	0			26-May-21 16:00 A	26-May-21 16:00
Electrical Conceptual Design						
PE1730	Vendor Engineer Develop Conceptual Design (Compo)	0	23-Feb-22 00:00 A	23-Feb-22 00:00	04-Mar-22 00:00 A	04-Mar-22 00:00
PE1740	Substation Engineering Review Conceptual Design (Compo)	0	07-Mar-22 00:00 A	07-Mar-22 00:00	11-Mar-22 16:00 A	11-Mar-22 16:00
Electrical Preliminary Design						
A22680	Vendor Engineer Develop SS Preliminary Design (Compo)	0	14-Mar-22 08:00 A	14-Mar-22 08:00	25-Apr-22 16:00 A	25-Apr-22 16:00
A22690	Substation Engineering Review SS Preliminary Design (Compo)	0	26-Apr-22 08:00 A	26-Apr-22 08:00	10-May-22 16:00 A	10-May-22 16:00
A22700	Telecom Engineering Review SS Preliminary Design (Compo)	0	26-Apr-22 08:00 A	26-Apr-22 08:00	10-May-22 16:00 A	10-May-22 16:00
P&C Conceptual & Preliminary Engineering Design						
P&C Conceptual Design						
PE1400	Develop P&C Engineering Scope Design in Accordance with Deliverables Checklist (Compo)	0	12-May-21 08:00 A	12-May-21 08:00	25-May-21 16:00 A	25-May-21 16:00
PE1710	Create Engineering Scope Document (Compo)	0	26-May-21 08:00 A	26-May-21 08:00	26-May-21 16:00 A	26-May-21 16:00
P&C Preliminary Design						
DE2090	Vendor Engineer Develop P&C Preliminary Design (Compo)	0	14-Mar-22 08:00 A	14-Mar-22 08:00	25-Apr-22 16:00 A	25-Apr-22 16:00
DE2100	P&C Engineering Review P&C Preliminary Design (Compo)	0	26-Apr-22 08:00 A	26-Apr-22 08:00	09-May-22 00:00 A	09-May-22 00:00
Telecomm Conceptual & Preliminary Engineering Design						
Telecomm Conceptual Design						
PE1750	Telecom Engineering Review Conceptual Design (Compo)	0	07-Mar-22 00:00 A	07-Mar-22 00:00	21-Mar-22 16:00 A	21-Mar-22 16:00

TASK filter: All Activities

(c) Primavera Systems, Inc.

Activity ID	Activity Name	Rem Dur	ES	Actual Start	EF	Actual Finish
Project Management						
Compliance Authorization Notification						
A1170	Prepare CAN (Construction Authorization Notice) (Compo)	18	27-Mar-23 08:00*		19-Apr-23 16:00	
Outage Permits / TOAs Request						
A22580	PM to Request Lead Commissioning Engineer NO-GO, FTE to test	0	09-May-22 08:00 A	09-May-22 08:00	09-May-22 16:00 A	09-May-22 16:00
A1250	Construction Rep SUBMIT OUTAGE REQUESTS for NON-transformer equipment (4 weeks before outage) (Compo)	0	31-May-22 08:00 A	31-May-22 08:00	06-Jun-22 16:00 A	06-Jun-22 16:00
ROW & EASEMENTS						
ROW1000	N/R ROW & Easements	0	23-Mar-23 08:00 A	23-Mar-23 08:00	23-Mar-23 08:00 A	23-Mar-23 08:00
ENVIRONMENTAL APPROVALS & PERMITS						
PERM1000	N/R Environmental Approvals & Permits	0	23-Mar-23 08:00 A	23-Mar-23 08:00	23-Mar-23 08:00 A	23-Mar-23 08:00
SITING APPROVALS / PERMITS / PROJECT SERVICES						
SIT1000	N/R Siting Approvals / Permits / Project Services	0	23-Mar-23 08:00 A	23-Mar-23 08:00	23-Mar-23 08:00 A	23-Mar-23 08:00
ENGINEERING DETAILED / IFC DESIGN						
ENG1000	Engineering Detailed / IFC Design	31	11-May-22 08:00 A	11-May-22 08:00	15-May-23 16:00	
Electrical Engineering						
Electrical Engineering Detailed Design						
A1130	Vendor Engineer Develop Electrical Detail Design (Compo)	0	11-May-22 08:00 A	11-May-22 08:00	11-Jul-22 16:00 A	11-Jul-22 16:00
A11405	Substation Engineering Review Electricial Detail Design (Compo)	0	12-Jul-22 08:00 A	12-Jul-22 08:00	25-Jul-22 16:00 A	25-Jul-22 16:00
Electrical Engineering NX-9						
NX9A-EM330	LTRC Reviews and Makes "GO / NO-GO" Decision for Thermal Ratings (Compo)	11	03-Apr-23 08:00*		17-Apr-23 16:00	
NX9A-EM300	LTRC Reviews and Sends Thermal Rating Data for TRC Review (Compo)	5	18-Apr-23 08:00*		24-Apr-23 16:00	
NX9A-EM290	TRC Reviews and Approves Thermal Rating Data (Compo)	5	25-Apr-23 08:00		01-May-23 16:00	
NX9A-EM280	LTRC Sends Thermal Rating Data for Approval & Submit to NURS (Compo)	5	02-May-23 08:00		08-May-23 16:00	
NX9A-EM250	TRC Review and Submit NX-9 Data to LCC + ISO-NE for S/S Thermal Rating (Compo)	5	09-May-23 08:00		15-May-23 16:00	
Electrical Engineering IFC Design						

TASK filter: All Activities

(c) Primavera Systems, Inc.

Activity ID	Activity Name	Rem Dur	ES	Actual Start	EF	Actual Finish
A8550	Vendor Engineer Develop Electrical IFC Design (Compo)	0	26-Jul-22 08:00 A	26-Jul-22 08:00	12-Aug-22 16:00 A	12-Aug-22 16:00
A8560	Substation Engineering Review Electrical IFC Design (Compo)	0	15-Aug-22 08:00 A	15-Aug-22 08:00	26-Aug-22 16:00 A	26-Aug-22 16:00
A22720	Substation Engineering Review Electrical IFC Design (Compo)	0	15-Aug-22 08:00 A	15-Aug-22 08:00	26-Aug-22 16:00 A	26-Aug-22 16:00
P&C Engineering						
OP1010	P&C Validation of PAF's Initial OP-24 Assessment NO GO (Compo)	0	06-Jun-22 08:00 A	06-Jun-22 08:00	06-Jun-22 16:00 A	06-Jun-22 16:00
CSD1030	PE Initiate CASCADE Forms (Appendix A) for Construction Package (Compo)	12	28-Apr-23 08:00*		15-May-23 16:00	
P&C Engineering Detailed Design						
PC1110	Vendor Engineer Develop P&C Detail Design (Compo)	0	11-May-22 08:00 A	11-May-22 08:00	11-Jul-22 16:00 A	11-Jul-22 16:00
PC1120	ES Engineering Review P&C Detail Design (Compo)	0	12-Jul-22 08:00 A	12-Jul-22 08:00	25-Jul-22 16:00 A	25-Jul-22 16:00
P&C Relay Settings Development						
PC1340	Vendor Engineer Develop IFR Relay Settings (Compo)	0	20-Jun-22 08:00 A	20-Jun-22 08:00	13-Sep-22 16:00 A	13-Sep-22 16:00
PC1350	ES Engineering Review IFR Relay Settings (Compo)	0	14-Sep-22 08:00 A	14-Sep-22 08:00	22-Sep-22 16:00 A	22-Sep-22 16:00
PC1410	Complete IFR Relay Settings (Compo)	0	23-Sep-22 08:00 A	23-Sep-22 08:00	30-Sep-22 16:00 A	30-Sep-22 16:00
P&C Engineering IFC Design						
PC1320	Vendor Engineer Develop P&C IFC (Compo)	0	25-Jul-22 08:00 A	25-Jul-22 08:00	16-Aug-22 16:00 A	16-Aug-22 16:00
PC1330	ES Engineering Review P&C IFC (Compo)	0	29-Aug-22 08:00 A	29-Aug-22 08:00	02-Sep-22 16:00 A	02-Sep-22 16:00
PROCUREMENT LONG LEAD MATERIAL						
PLLM1000	N/R Procurement Long Lead Material	0	23-Mar-23 08:00 A	23-Mar-23 08:00	23-Mar-23 08:00 A	23-Mar-23 08:00
PROCUREMENT MATERIAL - BALANCE OF MATERIAL						
PBOM1000	Procurement Material - Balance of Material	0	18-Jul-22 08:00 A	18-Jul-22 08:00	21-Feb-23 16:00 A	21-Feb-23 16:00
Electrical Balance of Material						
450	Issue DR for Cable / Wire (Compo)	0	01-Aug-22 08:00 A	01-Aug-22 08:00	10-Aug-22 16:00 A	10-Aug-22 16:00
460	Confirm PO Issued for Cable / Wire (Compo)	0	08-Aug-22 08:00 A	08-Aug-22 08:00	12-Aug-22 16:00 A	12-Aug-22 16:00

TASK filter: All Activities

(c) Primavera Systems, Inc.

Activity ID	Activity Name	Rem Dur	ES	Actual Start	EF	Actual Finish
480	Receive Cable / Wire	0	15-Aug-22 08:00 A	15-Aug-22 08:00	05-Oct-22 16:00 A	05-Oct-22 16:00
P&C Balance of Material						
380	Issue DR for Microprocessor Relays (stock coded) (Compo)	0	18-Jul-22 08:00 A	18-Jul-22 08:00	21-Jul-22 16:00 A	21-Jul-22 16:00
410	Issue DR for Relay Panel (Compo)	0	01-Aug-22 08:00 A	01-Aug-22 08:00	09-Aug-22 16:00 A	09-Aug-22 16:00
390	Confirm PO Issued for Microprocessor Relays (stock coded) (Compo)	0	08-Aug-22 08:00 A	08-Aug-22 08:00	12-Aug-22 16:00 A	12-Aug-22 16:00
400	Confirms PO Issued for Relay Panel (Compo)	0	08-Aug-22 08:00 A	08-Aug-22 08:00	12-Aug-22 16:00 A	12-Aug-22 16:00
395	Receive Relays	0	15-Aug-22 08:00 A	15-Aug-22 08:00	21-Feb-23 16:00 A	21-Feb-23 16:00
3380	Receive Relay Panel	0	15-Aug-22 08:00 A	15-Aug-22 08:00	05-Oct-22 16:00 A	05-Oct-22 16:00
PROCUREMENT OF SERVICE CONTRACTS						
PSC1000	Procurement of Service Contracts	6	01-Dec-20 08:00 A	01-Dec-20 08:00	03-Apr-23 16:00	
Engineer of Choice - Direct Award or Bid						
EOC1140	Engineering of Choice (EOC) - Provide RFP to Single Vendor (Compo)	0	01-Dec-20 08:00 A	01-Dec-20 08:00	07-Dec-20 16:00 A	07-Dec-20 16:00
EOC1150	Engineering of Choice (EOC) - Vendor Responds with Proposal (Compo)	0	09-Dec-20 08:00 A	09-Dec-20 08:00	15-Dec-20 16:00 A	15-Dec-20 16:00
3370	Decision Required Regarding Engineering Staffing (ES, COC, BID) (Compo)	0	03-Jan-22 08:00 A	03-Jan-22 08:00	03-Jan-22 16:00 A	03-Jan-22 16:00
EOC1180	Engineering of Choice (EOC) - EOC Committee Reviews at Monthly Meeting & Approves (Compo)	0	22-Feb-22 08:00 A	22-Feb-22 08:00	22-Feb-22 16:00 A	22-Feb-22 16:00
EOC1200	Engineering of Choice (EOC) - DR Prepared by Project Engineer & Project Controls (Compo)	0	22-Feb-22 08:00 A	22-Feb-22 08:00	22-Feb-22 16:00 A	22-Feb-22 16:00
EOC1220	Engineering of Choice (EOC) - DR Approved & PO Issued for Vendor - Conceptual Design Effort (Compo)	0	22-Feb-22 08:00 A	22-Feb-22 08:00	22-Feb-22 16:00 A	22-Feb-22 16:00
Constructor of Choice - Direct Award or Bid						
A21950	Prepare Specifications / Scope of Work (Electrical Contractor) (Compo)	0	26-Jul-22 08:00 A	26-Jul-22 08:00	02-Aug-22 08:00 A	02-Aug-22 08:00
EOC1230	Construction Contractor of Choice (COC) - Create & Provide RFP to Single Vendor	0	02-Aug-22 08:00 A	02-Aug-22 08:00	23-Nov-22 08:00 A	23-Nov-22 08:00
EOC1245	Construction Contractor of Choice (COC) - Vendor Responds with Proposal	0	23-Nov-22 08:00 A	23-Nov-22 08:00	15-Dec-22 16:00 A	15-Dec-22 16:00
A3440	CONST.SERVICES - BID - Contractors Evaluate RFP and Provide Proposal	0	02-Feb-23 08:00 A	02-Feb-23 08:00	20-Feb-23 16:00 A	20-Feb-23 16:00

(c) Primavera Systems, Inc.

Activity ID	Activity Name	Rem Dur	ES	Actual Start	EF	Actual Finish
A3430	CONST.SERVICES - BID - Eversource provide Spec / RFP	0	22-Feb-23 08:00 A	22-Feb-23 08:00	23-Feb-23 16:00 A	23-Feb-23 16:00
EOC1225	Construction Contractor of Choice (COC) - COC Committee Reviews, Recommends RFP/Bidding	0	23-Feb-23 08:00 A	23-Feb-23 08:00	23-Feb-23 16:00 A	23-Feb-23 16:00
A3450	CONST.SERVICES - BID - Eversource reviews contractor proposals	0	23-Feb-23 08:00 A	23-Feb-23 08:00	09-Mar-23 16:00 A	09-Mar-23 16:00
A3460	CONST.SERVICES - BID - Contract is Awarded - PO Issued	6	02-Mar-23 08:00 A	02-Mar-23 08:00	03-Apr-23 16:00	
Testing Service - Direct Award or Bid						
A1010	STAFFING DECISION: FET to test	0	09-May-22 08:00 A	09-May-22 08:00	09-May-22 16:00 A	09-May-22 16:00
CONSTRUCTION						
CON1000	Construction	132	16-Dec-22 08:00 A	16-Dec-22 08:00	06-Oct-23 16:00	
Outages						
TOA2437	TOA#22-02437 Cancelled	0	16-Dec-22 08:00 A	16-Dec-22 08:00	16-Dec-22 16:00 A	16-Dec-22 16:00
TOA2438	TOA#22-02438 Cancelled	0	16-Dec-22 08:00 A	16-Dec-22 08:00	16-Dec-22 16:00 A	16-Dec-22 16:00
TOA0893	TOA Compo 2X Transformer / 1243 Line OOS	17	03-Apr-23 08:00*		19-Apr-23 16:00	
CSM	Construction Start Milestone (Compo)	0	18-Apr-23 08:00*			
TOA-Const70	OUTAGE / General Construction Work - Relays (Compo)	148	18-Apr-23 08:00		06-Oct-23 16:00	
TOA2443	Compo 1X Transformer / 1139 Line OOS	25	19-Apr-23 08:00*		13-May-23 16:00	
TOA01192	TOA 23-01192 Cutover and test operate temporary 23K-2X relay package.	1	28-Apr-23 08:00*		28-Apr-23 16:00	
TOA01484	TOA 23-01484 Replace primary relays for the 23K-2X.	15	18-May-23 08:00*		01-Jun-23 16:00	
TOA01193	TOA 23-01193 Replace backup relays for the 23K-1X. Permission to test operate 23K-1X1-4, decoupled.	12	11-Sep-23 08:00*		22-Sep-23 16:00	
TOA01444	TOA 23-01444 Replace backup relays for the 23K-1X. Permission to test operate 23K-1X1-4, decoupled.	12	25-Sep-23 08:00*		06-Oct-23 16:00	
CFM	Construction Finish Milestone (Compo)	0			06-Oct-23 16:00	
ISD	EQUIPMENT IN SERVICE DATE (requires FOOB constraint) (Compo)	0			06-Oct-23 16:00*	
Construction Support LOEs						

(c) Primavera Systems, Inc.

Activity ID	Activity Name	Rem Dur	ES	Actual Start	EF	Actual Finish
ConRep-S	RESOURCE ONLY ACTIVITY - CONSTRUCTION - CONSTRUCTION REP (Compo)	121	18-Apr-23 08:00		06-Oct-23 16:00	
CONSTelec	RESOURCE ONLY ACTIVITY - CONSTRUCTION - ELECTRICIAN (Compo)	121	18-Apr-23 08:00		06-Oct-23 16:00	
Substation Construction						
A22540	Remove Existing Relays (Compo)	41	18-Apr-23 08:00		14-Jun-23 16:00	
A22550	Install New Equipment (Compo)	41	18-Apr-23 08:00		14-Jun-23 16:00	
A22570	Install Wiring (Compo)	41	18-Apr-23 08:00		14-Jun-23 16:00	
P&C Construction						
A1140	Construction - P&C Implement Relay Settings	132	03-Apr-23 08:00		06-Oct-23 16:00	
TEST & COMMISSIONING						
TC1000	N/R Test & Commissioning	0	27-Mar-23 08:00		27-Mar-23 08:00	
PROJECT CLOSE OUT						
PCO1000	Project Close Out	117	31-Dec-21 16:00 A	31-Dec-21 16:00	27-Mar-24 16:00	
ISD10	In Service Date	0			31-Dec-21 16:00 A	31-Dec-21 16:00
TD1100	Complete TD-707 Turnover Document / Forward to SOC & Mailing List (Compo)	5	10-Oct-23 08:00		16-Oct-23 16:00	
PM1110	PM to Document Electrical As-Built Drawings Complete (P&C) (Compo)	1	13-Feb-24 08:00		13-Feb-24 16:00	
EV1510	FE Files Substation Design Drawings at Station (Compo)	30	14-Feb-24 08:00		27-Mar-24 16:00	
PC8500	FE Files P&C Design Drawings at Station (Compo)	30	14-Feb-24 08:00		27-Mar-24 16:00	
Civil Close Out						
1110	Restore / Remediate Site (Compo)	10	10-Oct-23 08:00		23-Oct-23 16:00	
P&C Close Out						
PC8000	Prepare P&C Field Mark Ups (Compo)	21	17-Oct-23 08:00		14-Nov-23 16:00	
PC8510	Eversource Engineering Prepares & Sends Electrical Field Mark Up Packge to Vendor (Compo)	5	15-Nov-23 08:00		21-Nov-23 16:00	
PC8520	Vendor Engineering Verifies P&C Mark Ups and Updates As-Built Drawing Package. Submits Final Package to ES (Compo)	30	22-Nov-23 08:00		05-Jan-24 16:00	

TASK filter: All Activities

(c) Primavera Systems, Inc.

Activity ID	Activity Name	Rem Dur	ES	Actual Start	EF	Actual Finish
PC8530	Eversource Engineering Verifies Quality of Submitted P&C Drawings (Compo)	20	08-Jan-24 08:00		05-Feb-24 16:00	
PC8540	P&C Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field (Compo)	5	06-Feb-24 08:00		12-Feb-24 16:00	
LCE Closeout						
3290	LCE Review Test Data and Issue Commissioning Report (tie to As-Built submit Print activity) (Compo)	5	10-Oct-23 08:00		16-Oct-23 16:00	
Work Order / Financial Close Out						
1020	Cost Analyst Prepares FINAL Units of Property (Compo)	30	10-Oct-23 08:00		20-Nov-23 16:00	
1030	Asset Management Complete Asset Update(s) in CASCADE (Compo)	30	24-Oct-23 08:00		05-Dec-23 16:00	
Project Management Close Out						
A1260	Construction Rep Finalize CASCADE Forms (within 14 days folloiwng ISD) (Compo)	10	10-Oct-23 08:00		23-Oct-23 16:00	
1040	PM Prepares Closeout Documentation, Lessons Learned Meeting, etc. (Compo)	30	10-Oct-23 08:00		20-Nov-23 16:00	
1270	Prepare TD-707 Document (Compo)	30	10-Oct-23 08:00		20-Nov-23 16:00	
FINISH	Project / Work Order Complete (FINAL SCHEDULE TASK/MILESTONE) (Compo)	0			27-Mar-24 16:00	
NOT REQUIRED ACTIVITIES						
AT1805	N/R - T-18 NX-9 Rating to LCC + ISO for New 'T' Equipment (NC=Per Procedure/120 calendar days before DOE) (Compo)	0			29-Mar-21 08:00 A	29-Mar-21 08:00
AT0408	N/R - A-T-04.08 TCA (12C) Application Submitted (Compo)	0			29-Mar-21 08:00 A	29-Mar-21 08:00
NX9A-EM220	N/R (per GB 14-1-22) LTRC Reviews and Makes "GO / NO-GO" Decision for 1-Line Nomenclature (Compo)	0	14-Jan-22 00:00 A	14-Jan-22 00:00	14-Jan-22 00:00 A	14-Jan-22 00:00
NX9A-EM230	N/R (per GB 14-1-22) PE Updates 1-Line Nomenclature Dwgs & Checklist M7-EN-3006.2 - e-mail link to project team & CONVEX	0	14-Jan-22 00:00 A	14-Jan-22 00:00	14-Jan-22 00:00 A	14-Jan-22 00:00
NX9A-EM240	N/R (per GB 14-1-22) P&C Develops and Provides LTRC with P&C Checklist (M7-EN-3006.1) (Compo)	0	14-Jan-22 00:00 A	14-Jan-22 00:00	14-Jan-22 00:00 A	14-Jan-22 00:00
NX9A-EM260	N/R (per GB 14-1-22) LTRC Requests P&C Checklist (Compo)	0	14-Jan-22 00:00 A	14-Jan-22 00:00	14-Jan-22 00:00 A	14-Jan-22 00:00
NX9A-EM320	N/R (per GB 14-1-22) LTRC Submits1-Line Nomenclature to TRC (Compo)	0	14-Jan-22 00:00 A	14-Jan-22 00:00	14-Jan-22 00:00 A	14-Jan-22 00:00
NX9FINAL70	N/R (per GB 14-1-22) [If Required] Receive + Issue Final Affirmed NX-9 Data to NURS (Compo)	0	14-Jan-22 00:00 A	14-Jan-22 00:00	14-Jan-22 00:00 A	14-Jan-22 00:00
NX9A-EM310	N/R Scheduler @ NURS email "Submitted for DOE Monitoring" - Updates T-3, EquipDOE, Revs DOE per M7-EN-3006 (Compo)	0	19-Jan-22 08:00 A	19-Jan-22 08:00	19-Jan-22 08:00 A	19-Jan-22 08:00

(c) Primavera Systems, Inc.

Activity ID	Activity Name	Rem Dur	ES	Actual Start	EF	Actual Finish
NX9A120	N/R Scheduler - Send Email for 48Hrs Notification before DOE. (Compo)	0	19-Jan-22 08:00 A	19-Jan-22 08:00	19-Jan-22 08:00 A	19-Jan-22 08:00
NX9FINAL80	N/R Review + Affirm Accuracy of NX-9 for ISO Submission (Tie after Equip DOE or ISD) (Compo)	0	19-Jan-22 08:00 A	19-Jan-22 08:00	19-Jan-22 08:00 A	19-Jan-22 08:00
A22730	N/R_Partial Funding Not Required, will go to full funding	0	21-Mar-22 08:00 A	21-Mar-22 08:00	21-Mar-22 16:00 A	21-Mar-22 16:00
A22590	N/R_Assign Lead Commissioning Engineer (Compo)	0	09-May-22 08:00 A	09-May-22 08:00	09-May-22 16:00 A	09-May-22 16:00
BT2404	N/R_FTE / Determine / Assign Commissioning Engineer	0			09-May-22 08:00 A	09-May-22 08:00
BT1301	N/R_FTE_Commissioning Plan Complete	0			09-May-22 08:00 A	09-May-22 08:00
OP1020	N/R_P&C Updates OP-24 Appendix B (Compo)	0	14-Jun-22 08:00 A	14-Jun-22 08:00	14-Jun-22 16:00 A	14-Jun-22 16:00
OP1030	N/R_P&C Submits OP-24 Appendix B to ISO-NE (Compo) = No Go per P&C weekly sheet June 10	0	14-Jun-22 08:00 A	14-Jun-22 08:00	14-Jun-22 16:00 A	14-Jun-22 16:00
BT0901	N/R_per P&C_T-09 Protection System Data - OP-24 Requirement (Tie to First Outage Milestone Phase)	0			14-Jun-22 16:00 A	14-Jun-22 16:00
A22710	N/R_Telecom Engineering Review Electricial Detail Design (Compo) _ no telecom	0	12-Jul-22 08:00 A	12-Jul-22 08:00	25-Jul-22 16:00 A	25-Jul-22 16:00
420	N/R Prepare & Approve SPEC (approx 4 weeks) (Compo)	0	25-Jul-22 08:00 A	25-Jul-22 08:00	26-Jul-22 16:00 A	26-Jul-22 16:00
A21960	N/R_Prepare and Issue RFP (Electrical Contractor) (Compo)	0	25-Jul-22 08:00 A	25-Jul-22 08:00	25-Jul-22 16:00 A	25-Jul-22 16:00
A21970	N/R_Bid Period (Electrical Contractor) (Compo)	0	25-Jul-22 08:00 A	25-Jul-22 08:00	25-Jul-22 16:00 A	25-Jul-22 16:00
A21980	N/R_Evaluate Bids and Develop Short List (Electrical Contractor) (Compo)	0	25-Jul-22 08:00 A	25-Jul-22 08:00	25-Jul-22 16:00 A	25-Jul-22 16:00
A1070	N/R_switching will be entered when TOA are approved	0	17-Nov-22 08:00 A	17-Nov-22 08:00	17-Nov-22 16:00 A	17-Nov-22 16:00
A1080	N/R_Switching will be entered to match TOA RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH IN (Compo)	0	22-Nov-22 08:00 A	22-Nov-22 08:00	22-Nov-22 16:00 A	22-Nov-22 16:00
TOA2435	N/R TOA#22-02435 Cancelled_Cutover and test operate temporary 23K-1X relay package.	0	16-Dec-22 08:00 A	16-Dec-22 08:00	16-Dec-22 16:00 A	16-Dec-22 16:00
TOA2436	N/R TOA#22-02436 Cancelled_Cutover and test operate temporary 23K-1X relay package.	0	16-Dec-22 08:00 A	16-Dec-22 08:00	16-Dec-22 16:00 A	16-Dec-22 16:00
EOC1235	N/R_Construction Contractor of Choice (COC) - going to bid	0	23-Feb-23 08:00 A	23-Feb-23 08:00	23-Feb-23 16:00 A	23-Feb-23 16:00
EOC1240	N/R_Construction Contractor of Choice (COC) - DR Approval & PO Issued for Vendor - Design Effort	0	23-Feb-23 08:00 A	23-Feb-23 08:00	23-Feb-23 16:00 A	23-Feb-23 16:00

(c) Primavera Systems, Inc.

EVERSOURCE

Constructability Review Form: **Substation**

Project Title: [redacted] **Obsolete Distribution Relay Replacement**	☐	Prior Constructability Review Performed?
	☐	Program Related Site Specific Review?
Project Numbers(s): CS00463	**Project Constructability Phase:** ☐ Conceptual Engineering Design ☒ Preliminary Engineering Design ☐ Detailed Engineering Design	
Date(s) of Constructability Review: **04/29/2020** 05/18/2022		
Project Scope Statement: Replace aging and obsolete relays to improve reliability. The relays being replaced consist of (9) obsolete GEC KCGG model units which protect the 1X and 2X, Bus B1 and B2, and feeders 23K11, 16 and 17.		

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		☐	☐	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 the review even if external construction resources are planned

[redacted] 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] _____ *5/18/22* _____

Name / Signature *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	Lack of capacity during outages	Furnish and install temporary transformer relay protection
2		
3		
4		
5		

	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 to replace antiquated relay. This is a P&C only Project. No remote station impacts.

EVERSOURCE

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?	☐	Material was identified and ordered.
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 impact to control house.
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	☐	Thermal rating shall be checked but just for verification.
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	
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	

EVERSOURCE

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	
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	N/A	
9	Nomenclature / Switching One-Line Diagram -Any obvious deviations from diagrams provided?	☐	Yes
10	BPS Separation Requirements - Is this BPS Substation? Y/N (part of PAF) - Changes to pre-existing BPS standards?	☐	Non BPS
11	IEC 61850 Substation Automation and Communication Requirements - Any Impacts/Retrofit needed?	N/A	
12	Any Upgrades to ES Standards - Is retrofit needed to bring up to ES standards? Can that be done?		*The new Relay being replaced will bring the Substation up to Eversource's present standard.*
B	**Construction**		
1	**Any safety hazards specific to the facility? i.e. Low Bus, Deterioration, etc.**	☐	none
2	**Prior known Site Specific Conditions** -Common or Obvious station Issues -Missing scope items that could impact costs?	☐	none
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?	☐	Oversight needed by a CR, internal testing will support the project.

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
	-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?	NA	
5	**Unique Equipment Considerations:** **Gas insulated substation, Gas insulated line, Gas insulated bus, Pass Breaker, Statcom, Sync Condenser**	NA	

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	☐	Clearances are being developed, working with the testing rep, outage coordinator.
7	**Equipment Testing & Acceptance** -Grounding plans / Resources? Will we need grounds hung? -Hi-pot testing and where will the equipment be set up?	NA	
8	Need for mobile generator and where connected (if needed)	☐	None needed
9	Need for mobile battery and where connected (if needed)	☐	None Needed
10	OT work required or Notable Permit Conditions (special hours)?	☐	
11	Coordination of boundaries/seams (Identification of point of demarcation for connection to existing equipment and/or for coordination with other municipalities)	NA	
C	**Environmental**		
1	**Soil Pre-Characterization or Grab Sampling Completed/Planned**	NA	

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
2	**Desktop investigation and EAD Review** -Required Permits -Stormwater Considerations -Dewatering requirements -Wetland and buffer review	NA	All work is within the control house, no environmental impacts are expected.
3	Risk or presence of PCB's/Asbestos/Lead/SF6		
4	Transformer Spill Containment Recommended?		
5	Expanding Footprint / New Buildings or future Expansion Plans? (Enviro Impact)		
6	Environmental oversight considerations? (Inspection type/Interval)		
7	Environmental mitigations - Any matting or seasonal needs? Review D&M Plan with CR.		
D	**Siting, S&CS, and T&D Real Estate**		
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	NA	All work is within the control house.
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		
F	**Protection & Controls**		
1	Panel Graphic additions and/or Modifications	☐	NC

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
2	Space on existing panels for new equipment? (front & rear of panel fronts)	☐	Space restraints require reuse of old transformer lockouts and fewer test switches for all new relay packages than standard.
3	Panel fronts conform to drawings	☐	Location of 43ACO/94T to be updated in panel drawings to reflect actual position
4	Access to bring new panels into control enclosure	☐	NA
5	Nameplate list and location of nameplates	☐	NC
6	Verifies that relays and meters that will be an interconnected project work are as shown on the drawings.	☐	NC
7	Temporary protection, relays, control cable needed? How long will they be required?	☐	Temporary settings will be issued for a temporary overcurrent relay installed during transformer outages to allow for fast restoration in the event the transformer is needed.
8	Will relay setting changes be needed? Any additional outage requirements for changes?		Several existing and all new relay packages will require settings.
G	**Telecom Engineering**		
1	Review telecom equipment in existing control enclosure	NA	No Telecom engineering required
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		
8	Review space for any required additional communications cabinets which may be required to support additional telecommunications equipment installed	NA	

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
9	Review third party Telecommunications at substation and confirm whether additional capacity or Ground Potential Rise protection is required	N	

Photos

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

23k-1X3-B1-2 Panel (Front, Upper)	23K-1X3-B1-2 (Front, Lower)
	

EVERSOURCE

Constructability Review Form: **Substation**

23K 17-2 (Front, Upper)	23K 17-2 (Front, Lower)
[redacted]	
52/11F FEEDER BREAKER 23K 11-2 (Front, Upper)	52/11F FEEDER BREAKER 23K 11-2 (Front, Lower)
[redacted]	

EVERSOURCE

Constructability Review Form: **Substation**

52/14F FEEDER BREAKER 23K 14-2 (Front, Upper)	52/14F FEEDER BREAKER 23K 14-2 (Front, Lower)
	
52/2XB Transf. Breaker B4 - 23K-2X3-B2-2 (Ft, Upper)	52/2XB Trans. Breaker B4 - 23K-2X3-B2-2 (Front, Lower)
	