Operations Project Authorization Form

Approved at April 29, 2020 EPAC
Link to Meeting Minutes

Date Prepared: 08/22/2018, 04/20/2020 (Rev. 1)	**Project Title: [redacted] – Replace 3 OCBs**
Company/ies: Eversource CT	**Project ID Number: CS00259**
Organization: Asset Management	**Class(es) of Plant: Distribution - Substation**
Project Initiator: [redacted]	**Project Category: Stations - Circuit Breakers**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Project Purpose: [redacted]**
Estimated in service date: 12/2020	**If Transmission Project: PTF? N/A**
Eng. /Constr. Resources Budgeted? Yes	**Capital Investment Part of Original Operating Plan? Yes**
Authorization Type: Full Funding	**O&M Expenses Part of the Original Operating Plan? N/A**
Total Request: $1,500K	

Financial Requirements:

Project Authorization

ERM: _____

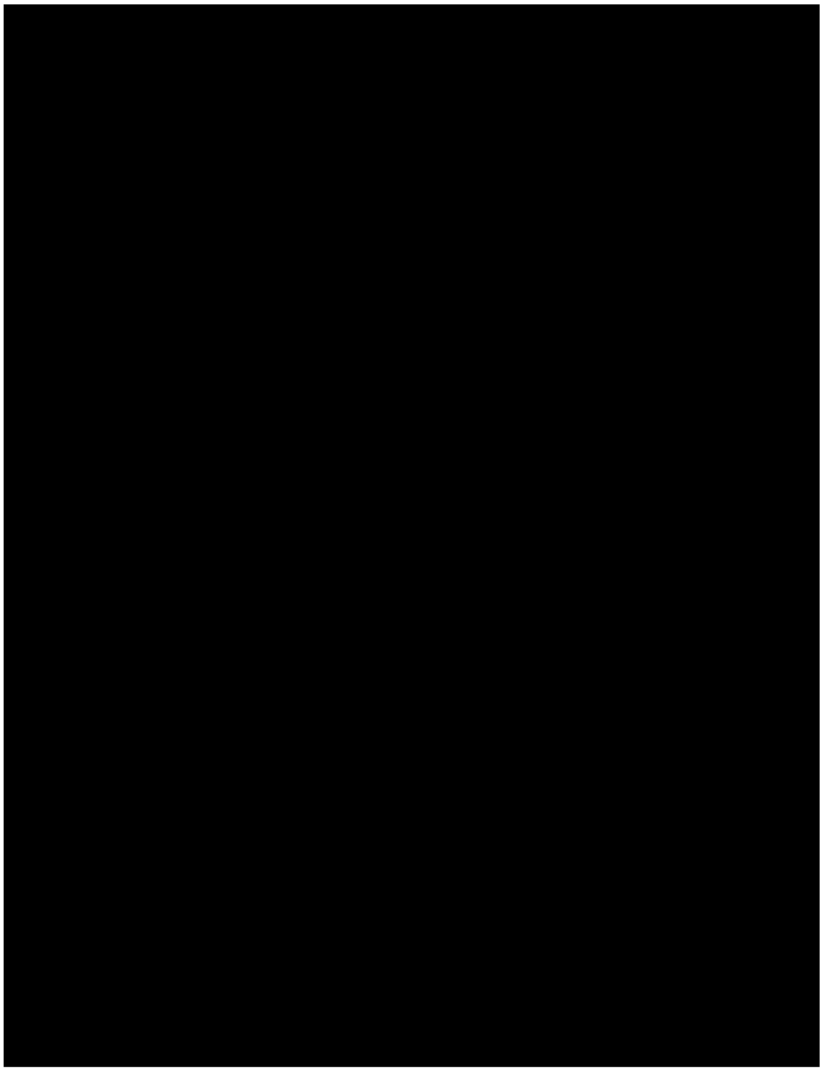
FP&A: _____

Executive Summary

This revised Project Authorization Form (PAF) is a request for $1,500K to [redacted] to improve operational reliability. This project was originally approved in Power Plan on November 15, 2018, for a total request of $1,046K. This revised PAF is requesting an additional $454K to include the use of a mobile transformer, additional construction & testing cost and contingency to account for potential outage delays and cancellations.

The project is currently in the construction phase and [redacted]

[redacted] and the estimated cost for the mobile is $202,300.



The cost to install the [redacted] increased due to the cancellation of outages caused by storm events and CONVEX / SCLL recommendations. The outage cancellations resulted in additional contractor direct and indirect costs. As of March 31, 2020, approximately $860K has been spent on this project to [redacted].

A constructability review was completed in June 2018, and an updated form was completed and executed by the Project Manager on 04/20/2020. The project team is confident that the engineering design matches the field conditions for [redacted]

A summary of the previously approved budget and the new estimate is provided below.

Note: Dollar values are in thousands.

	Previously Approved ($)*	New Estimate ($)	Delta ($)
Labor/OT	0	58	58
Material	91	79	(12)
Engineering	147	158	11
Construction	152	281	129
Testing	165	291	126
Project support	0	0	0
Contingency	0	80	80
Total Direct	**555**	**947**	**392**
Indirect	491	516	25
AFUDC	1	37	36
Total Request	**1,047**	**1,500**	**453**

** Original authorized budget not broken down by category. Cost distribution provided from cash flow dated 11/15/2018.*

Labor /OT: $58K

The additional labor cost is required to support the installation of the mobile transformer, which was not considered at the time of the original approval. Therefore, this was not included in the original estimate.

Engineering: $11K

The additional engineering cost is required to support the install of the mobile transformer. This was not included in the original estimate.

Construction: $129K

The construction cost increase is due to the original approved budget being based on historical unitized costs for OCB replacement which did not consider the need for a mobile transformer unit, nor the added risk of gaining approvals for outages in the area where this project is located.

Testing: $126K

The cost for testing increased due to the original budget being based on historical cost and the added cost for mobile installation.

Contingency: $80K

The contingency budget of $80K is for [redacted].

Indirect: $25K

The indirect costs are higher than originally estimated due to greater construction costs.

AFUDC: $36K

AFUDC actuals are expected to be greater than initially estimated.

Project Costs Summary
Note: Dollar values are in thousands

	Prior Authorized	2018	Prior Spend to Date	Remaining 2020	Totals
Capital Additions - Direct	$554	$-	$438	$494	$932
Less Customer Contribution	$-	$-	$-	$-	$-
Removals net of Salvage ___%	$-	$-	$-	$15	$15
Total - Direct Spending	$554	$-	$438	$509	$947
Capital Additions - Indirect	$491	$-	$231	$285	$516
Subtotal Request	$1,045	$-	$669	$794	$1,463
AFUDC	$1	$-	$14	$23	$37
Total Capital Request	$1,046	$-	$683	$817	$1,500
O&M	$-	$-	$-	$-	$-
Total Request	$1,046	$-	$683	$817	$1,500

Financial Evaluation
Note: Dollar values are in thousands

Direct Capital Costs	2018	Prior Spend to Date	Remaining 2020	Totals
Straight Time Labor	$-	$29	$27	$56
Overtime Labor	$-	$1	$-	$1
Outside Services	$-	$352	$379	$731
Materials	$-	$56	$23	$79
Other, including contingency amounts (describe)	$-	$-	$80	$80
Total Direct Costs	$-	$438	$509	$947

Indirect Capital Costs	2018	Prior Spend to Date	Remaining 2020	Totals
Indirects/Overheads (including benefits)	$-	$231	$285	$516
Capitalized interest or AFUDC, if any	$-	$14	$23	$37
Total Indirect Costs	$-	$245	$308	$553

Total Capital Costs	$-	$683	$817	$1,500
Less Total Customer Contribution	$-	$-	$-	$-
Total Capital Project Costs	$-	$683	$817	$1,500
Total O&M Project Costs	$-	$-	$-	$-

Note: Explain unique payment provisions, if applicable:

The contingency of $80K is for [redacted].

Future Financial Impacts:

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

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

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

What functional area(s) will these future costs be funded in? There are no additional future costs associated with this project. The [redacted]

A representative from the respective functional area is required to be included as a project approver.

<u>If this is other than a Reliability Project, please complete the section below;</u>

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

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

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

What functional area(s) will these benefits be reflected in? Substation Operations.

A representative from the respective functional area is required to be included as a project approver.

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

Is there an ARO associated with this project? If yes, please provide details: An ARO is not associated with this project.

Are there other environmental cleanup costs associated with this project? If yes, please provide details: Each site was inspected for any additional scope that would be a factor associated with the OCB replacements. It was confirmed that no additional environmental cost will be associated with this project.

Technical Justification:

Project Need Statement

[redacted] As part of an environmental effort (under PURA Docket No. 14- 05-06), the [redacted] The need is driven by obsolescence and environmental concerns.

Project Objectives

The main objectives of this project are to:

- [redacted].
- Increase employee and customer safety.
- Increase system reliability.
- Reduce costs by increasing maintenance intervals.

Project Scope

[redacted]. See Attachment 2 - for a [redacted]. Eversource standard [redacted]. There are [redacted] The following OCBs will be replaced:

Nom	Age	Tank style	Mfg	Model	Load Ratin	V class	Interru pt kA
[redacted]							

[redacted]

[redacted]

- [redacted]
- [redacted]

Verify acceptable foundation parameters for the proposed [redacted] as follows:

- [redacted]

A constructability review was conducted on 6/22/2018 - see Attachment 3.

Background / Justification

The overall capital initiative to eliminate oil filled circuit breakers from the system was presented to PURA within Docket No. 14-05-06. It began with replacing OCBs with PCB bushings and later expanded to all oil filled circuit breakers. The initiative justification was due to the amount of environmental damage and the associated cost the company would be exposed to by a PCB bushing/breaker failing catastrophically.

[redacted]

Business Process and / or Technical Improvements

The benefit to customers will be improved reliability and less environmental risk in the future by replacing aging oil filled equipment that is both a safety and environmental concern. [redacted]

Alternatives Considered with Cost Estimates

A do-nothing approach is not recommended as an alternative because it does not address Eversource's commitments to the regulatory agencies to address environmental concerns.

As an alternative for the [redacted] is roughly $4M to $5M to install.

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Engineering - Completed	Sept 2018
Procurement - Completed	Oct 2018
Construction start	Sep 2019
[redacted] - Completed	Nov 2019
[redacted]	Dec 2020
In Service	Dec 2020

Regulatory Approvals

N/A

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Internal construction resources not available to perform the work.	2019	Low	[redacted] will be performed by an outside contractor.
Internal engineering resources not available to perform the work.	2018	Low	This project will be engineering by outside services. Limited support from internal engineering
Materials Shortage or long lead times	2019	Medium	[redacted]. Lead times may delay construction schedules.
System abnormal configuration	2019	High	Pre-build as much as possible prior to taking outages. Work will be scheduled to minimize system abnormal time. Pre-contingent switching may be performed for some breakers.

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Outage approval and Cancellations	2020	High	1. Reach out to the circuit owners to identify potential issues and submit outage plans for approval ahead of the planned work. 2. Work with the SCLL / CONVEX to determine outages dates ahead of planned outages.

References

CL&P Operating Initiatives 2014 to 2019, Docket# 14-05-06

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

- Figure 1 - [redacted]
- Figure 2 - [redacted]
- Attachment 1 - Backup Cost Estimate Files
- Attachment 2 - [redacted]
- Attachment 3 - Constructability Review Form

Figure 1 - [redacted]



Figure 2 - [redacted]



Project Checklist – Transmission and Substation

INSTRUCTIONS:

It is the responsibility of the initiator to contact the 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.

Checklist for Studies and Processes of a Transmission & Substation Capital Project						
Project Name: [redacted] – Replace 3 OCBs					**PAF No: CS00259**	
Facility Type: ☐ BPS	☐ BES	☐ PTF	☐ non-PTF	☐ CIP	☒ Distribution	
PLANNING						
Is a NX-9 required?					No	
Is an ISO-NE PAC presentation required?					No	
Is a PPA required?					No	
Is a TCA Application Required?					No	
PLANNING/PROTECTION & CONTROLS						
Are RAS/SPS/UVLs affected?					No	
OPERATIONS						
Outage Required?	☒ Primary Equipment (Power Transfer)		☒ Secondary Equipment (P&C only)		☐ Outage Not Required	
Do SCLL Conditions Exist?					Yes	
Has an outage schedule been approved?					Yes	
Are Operations & Maintenance procedures/training required?					No	
STANDARDS						
Does the project include standard equipment and designs?					Yes	
SUBSTATION ENGINEERING						
Does this impact Revenue Metering					No	
Is preliminary short circuit/ breaker duty analysis required?					No	
Are there any changes to the baseline audible noise?					No	
Is there an impact to the existing ground grid?					Yes	
Is a Transient Over Voltage (TOV) analysis required?					No	
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	

Checklist for Studies and Processes of a Transmission & Substation Capital Project	
Project Name: [redacted] – Replace 3 OCBs	**PAF No: CS00259**
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?	No
PERMITTING	
Is there any permitting required?	No
SITING & CONSTRUCTION SERVICES (OUTREACH)	
What is the level of outreach expected?	Low
INITIATOR	
Has a field constructability review been completed?	Yes
INVESTMENT RECOVERY	
Does the project require development of an Investment Recovery plan?	No
COST ESTIMATING	
How was the cost estimate prepared?	Estimate was prepared by an external firm
Who prepared the estimate?	[redacted]
Was the estimate reviewed by Eversource Estimating?	Yes - Partial Review

Cost Estimate Backup Details

See attached cost estimate backup files.

Budget Year:	
Initiative / Job:	
Project Manager:	
Work Order Numbers:	
MIB Project ID:	
ISD:	
Authorized: 1,046	

2020
[redacted]
CS00259

Rev 11: 2019 -199.7k, 2020 +199.7k; CST shift
Rev 12: 2020 +184.1k; PSM, LCE & 84.6k COR
Rev 1: No change
Rev 2: +396.5k; CST (mobile + CST / TST increase)
Rev 3: No change

[redacted]

outage will be shifting - to when unknown 1/30

DIRECTS	RESOURCE	Priors	2018 Total	2019 Total	JAN Actual	FEB Actual	MAR Actual	APR Forecast	MAY Forecast	JUN Forecast	JUL Forecast	AUG Forecast	SEP Forecast	OCT Forecast	NOV Forecast	DEC Forecast	2020 Total	20 PCS	Total Project	PCS TOTAL				
					2020																			
ENGXX (Engineering/ PM/Fees)	LT	-	-	7.6		0.5			0.4	0.5	0.4						1.8		9.4					
	AO/AQ Other	-	-	-													-		-					
	AO/AQ MP	-	-	97.0													-		97.0		97.0	-	10706912	DR 244260
	AO/AQ EN	-	-	34.5	(1.4)	2.8	7.9	2.8	4.2	4.2	2.8						23.3		57.8					
	AO/AQ TAX	-	-	3.2			0.1										0.1		3.3					
	OTHER	-	-	-					0.1	0.1	0.1						0.3		0.3					
	ENGXX TOTAL	**-**	**-**	**142.3**	**(1.4)**	**3.3**	**8.0**	**2.8**	**4.7**	**4.8**	**3.3**	**-**	**-**	**-**	**-**	**-**	**25.5**	**20.3**	**167.8**	**162.6**				
MATXX (Material)	LT	-	-	0.2													-		0.2					
	AO/AQ	-	-	-													-		-					
	AM	-	-	55.5					22.3	1.0							23.3		78.8					
	OTHER	-	-	-													-		-					
	MATXX TOTAL	**-**	**-**	**55.7**	**-**	**-**	**-**	**-**	**22.3**	**1.0**	**-**	**-**	**-**	**-**	**-**	**-**	**23.3**	**23.3**	**79.0**	**79.0**				
CSTXX (Construction)	LT	-	-	23.1			0.3		1.7	12.0	11.0						25.0		48.1					
	AO/AQ Other	-	-	4.9	0.7	3.9	0.7		5.0	84.1	40.0						134.4		139.3					
	AO/AQ CST rep	-	-	14.4	-				5.0	25.0	10.0						40.0		54.4					
	AO/AQ MP	-	-	35.0	120.6	-	(59.4)										61.2		96.2		119.628	23.4	10706912	DR 244260
	AO/AQ MP	-	-	59.8	(59.8)	59.8	-										-		59.8		59.782	-	10977583	
	AO/AQ TAX	-	-	3.7	(0.5)	6.1	-										5.6		9.3					
	OTHER	-	-	0.1			0.0		0.1	0.8	0.7						1.6		1.7					
	CSTXX TOTAL	**-**	**-**	**141.0**	**61.0**	**69.8**	**(58.4)**	**-**	**11.8**	**121.9**	**61.7**	**-**	**-**	**-**	**-**	**-**	**267.8**	**332.4**	**408.8**	**473.4**				
TSTXX (Test)	LT	-	-	-													-		-					
	AO/AQ Other	-	-	-					5.0	25.0	10.0						40.0		40.0					
	AO/AQ LCE	-	-	75.3	23.1				10.0	40.0	20.0						93.1		168.4					
	AO/AQ MP	-	-	21.6			59.4										59.4		81.0		81.0	-	10706912	DR 244260
	AO/AQ TAX	-	-	2.4	(0.5)												(0.5)		1.9					
	OTHER	-	-	-													-		-					
	TSTXX TOTAL	**-**	**-**	**99.3**	**22.6**	**-**	**59.4**	**-**	**15.0**	**65.0**	**30.0**	**-**	**-**	**-**	**-**	**-**	**192.0**	**132.6**	**291.3**	**231.9**				
MISC. ACCT.	**MA**	**-**	**-**	**-**													**-**		**-**	**0.0**				
CONTINGENCY	**CONTINGENCY**	**-**	**-**	**-**													**-**	**0.0**	**-**	**0.0**				
TOTAL DIRECTS		**-**	**-**	**438.3**	**82.2**	**73.1**	**9.0**	**2.8**	**53.8**	**192.7**	**95.0**	**-**	**-**	**-**	**-**	**-**	**508.6**	**508.6**	**946.9**	**946.9**		approved d	**554.0**	(392.9)
																						AD +10%	609.4	(337.5)
INDIRECTS	Labor Loaders	-	-	**29.4**	-	0.6	0.2	-	1.4	8.6	7.8	-	-	-	-	-	**18.6**		48.0					
	ZMI	-	-	**18.9**	-	-	-	-	-	-	-	-	-	-	-	-	**-**		18.9					
	Stores Loaders	-	-	**8.3**	-	-	-	-	3.3	0.2	-	-	-	-	-	-	**3.5**		11.8					
	Vehicle Allocation	-	-	**1.6**	-	-	0.0	-	-	-	-	-	-	-	-	-	**0.0**		1.6					
	E&S	-	-	**164.8**	41.1	36.8	4.6	1.4	16.4	99.7	51.0	-	-	-	-	-	**251.0**		415.8					
	AS&E	-	-	**7.5**	1.0	3.0	0.1	0.1	1.1	4.7	2.4	-	-	-	-	-	**12.4**		19.9					
	TOTAL INDIRECTS	**0.0**	**0.0**	**230.4**	**42.1**	**40.4**	**5.0**	**1.5**	**22.3**	**113.1**	**61.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**285.5**	**285.6**	**515.9**	**516.0**				
TOTAL DIRECTS & INDIRECTS		**0.0**	**0.0**	**668.7**	**124.3**	**113.5**	**14.0**	**4.3**	**76.1**	**305.8**	**156.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**794.1**	**794.2**	**1,462.9**	**1,462.9**				
	ZK - AFUDC	**0.0**	**0.0**	**14.2**	**3.5**	**4.3**	**4.9**	**5.1**	**5.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**23.0**	**22.9**	**37.2**	**37.1**				
	TOTAL PROJECT	**0.0**	**0.0**	**682.9**	**127.8**	**117.7**	**18.9**	**9.3**	**81.4**	**305.8**	**156.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**817.1**	**817.1**	**1,500.0**	**1,500.0**		PCS		
	Cumulative Total Project	-			810.7	928.4	947.3	956.6	1,038.0	1,343.8	1,500.0	1,500.0	1,500.0	1,500.0	1,500.0	1,500.0		(0.0)		(0.0)		1,044		
	Cum Total Project for AFUDC Calc.	-			810.7	928.4	947.3	956.6	1,038.0	1,343.8	1,500.0	1,500.0	1,500.0	1,500.0	1,500.0	1,500.0						REM		
	Cummulative Current Year				127.8	245.5	264.4	273.7	355.1	660.9	817.1	817.1	817.1	817.1	817.1	817.1						80		
	Obivent Cash Flow	-	-	682.8	127.8	117.7	18.9	9.0	81.0	386.0	156.0	-	-	-	-	-	896.4			1,579.2		In Service		
					(122.8)	(113.7)	(9.9)													**Authorized**		964		
																				AB Plus 10%		1,046.0	(454.0)	
																				AB Plus 15%		1,150.6	(349.4)	
																						1,202.9	(297.1)	

[redacted]

EVERSOURCE
Constructability Review Form

Submit a PDF copy of this signed form to TranEPAC@eversource.com along with the PAF

Project Number(s): CS00259	**Project Title:** [redacted]
Date of Constructability Review: 06/22/2018	

Constructability Review Team: *list below the department and names of all who participated in the constructability review walkdown*

Lead*	Department**	Name and Title
☒	Project Management	[redacted]
☒	Operations	
☒	Construction	
☒	Engineering	
	Siting	
	Siting & Construction Services	
	Environmental	
	Rights & Survey	
	Other:	
	Other:	

*Check the box of the individual who coordinated/led the constructability review

**List names from any other departments who attended the constructability review, add additional rows to the table if necessary

Observations/Findings/Scope Review/Risks Identified:
list below the outcome of the constructability review.

[redacted]

The Construction Services Supervisor, Engineer lead, or Project Manager must sign below.

[redacted] 04/20/20

Signature *Date*