Operations Project Authorization Form

Approved by EPAC Chairmen external to meeting on 03/13/2020
Link to 03/18/2020 EPAC Meeting Minutes

Date Prepared: March 11, 2020	**Project Title: [redacted] – OCB Replacement**
Company/ies: Eversource CT	**Project ID Number: CS00378**
Organization: Asset Management	**Class(es) of Plant: Distribution Substation**
Project Initiator: [redacted]	**Project Category: Stations – Breakers**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Project Purpose: Replace obsolete equipment**
Estimated In-Service Date: 05/30/2020	**If Transmission Project: PTF? N/A**
Eng. /Constr. Resources Budgeted? Y	**Capital Investment Part of Original Operating Plan? N**
Authorization Type: Full Funding	**O&M Expenses Part of the Original Operating Plan? N**
Total Request: $1.833M	

Financial Requirements:

Project Authorization

ERM: _____

FP&A: _____

Executive Summary

This project is seeking full funding of $1.833M to replace five (5) [redacted] On March 9, 2020 the 5R3-2 breaker failed and annual work order DSQ03013 was created for the emergent required replacement. The charges incurred under this work order will be transferred to the specific project CS00378.

This project will replace the [redacted] under this project authorization. Eversource CT has a PURA initiative within docket number 14-05-06 to replace all OCBs at distribution substations to minimize environmental impacts from leaking and failed equipment. This project scope will replace the [redacted].

Project Costs Summary

Note: Dollar values are in thousands

	Prior Authorized	2020	2021	Totals
Capital Additions - Direct	$100	$1,271	$ -	$1,271
Less Customer Contribution	$ -	$ -	$ -	$ -
Removals Net of Salvage 0%	$ -	$50	$ -	$50
Total - Direct Spending	$100	$1,321	$ -	$1,321
Capital Additions - Indirect	$ -	$453	$ -	$453
Subtotal Request	$ -	$1,774	$ -	$1,774
AFUDC	$ -	$59	$ -	$59
Total Capital Request	$ -	$1,833	$ -	$1,833
O&M	$ -	$ -	$ -	$ -
Total Request	**$100**	**$1,833**	**$ -**	**$1,833**

Financial Evaluation

Note: Dollar values are in thousands

Direct Capital Costs	2020	2021	Totals
Straight Time Labor	$121	$ -	$121
Overtime Labor	$ -	$ -	$ -
Outside Services	$886	$ -	$886
Materials	$162	$ -	$162
Other, including contingency amounts	$153	$ -	$153
Total Direct Costs	**$1,321**	**$ -**	**$1,321**

Indirect Capital Costs	2020	2021	Total
Indirects/Overheads (including benefits)	$453	$ -	$453
Capitalized interest or AFUDC, if any	$59	$ -	$59
Total Indirect Costs	**$512**	**$ -**	**$512**

Total Capital Costs	**$1,833**	**$ -**	**$1,833**
Less Total Customer Contribution	$ -	$ -	$ -
Total Capital Project Costs	**$1,833**	**$ -**	**$1,833**
Total O&M Project Costs	**$ -**	**$ -**	**$ -**

Note: Explain unique payment provisions, if applicable

Contingency	Amount
Other - Vehicles	$ 8,000
Field Conditions do not match Engineering Deliverables	$ 75,000
Severe Weather, Delays, OT	$ 50,000
Design development	$ 20,000
TOTAL	**$ 153,000**

Future Financial Impacts:

Provide below the estimated future costs that will result from the project:
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? N/A

There are no additional future costs associated with this project. The existing circuit breakers will be replaced. There are no additional circuit breakers being added under this program.

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

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

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

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

What functional area(s) will these benefits be reflected in? N/A

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

Is there an ARO associated with this project? No.

Are there other environmental cleanup costs associated with this project?

Yes, expected environmental cleanup costs have been accounted for within the requested project cost. The cleanup costs include the drainage, removal & disposal of the oil from the existing circuit breakers. The oil footprint for this substation will be reduced as a result of this project. It is suggested that the SPCC be reviewed and modified accordingly.

Technical Justification:

Project Need Statement

The [redacted] that range in age from 46 to 55 years. Following the [redacted] and as part of a past PURA initiative within docket number 14-05-06 a total of [redacted]

This project will replace the failed breaker and remove the obsolescence and environmental concerns of the remaining in-service OCBs. Manufacturer support and replacement parts are difficult to obtain for these circuit breakers Many of the required repair parts for these aging breakers are unavailable. Eversource CT previously submitted a PURA initiative within docket number 14-05-06 to replace all OCBs at distribution substations to minimize environmental impacts from possible leaking and failed equipment.

Project Objectives

Replace one [redacted]

Project Scope

Replace [redacted]

Eversource standards require [redacted] The type of breaker to replace the existing OCB depends on the existing breaker voltage class and amperage rating.

The scope includes the following breakers:

[redacted]

Based on the voltage rating of the existing [redacted]

Replacing the OCBs may require retrofitting the existing foundations to accommodate the proposed vacuum circuit breakers base. The foundations will be reviewed by engineering to confirm that they will adequately support the new breaker configuration. Steel beams are may be used to extend the foundation base to accommodate the new vacuum breaker bases. The scope includes extending power and control cables to the new vacuum circuit breaker control enclosure, testing and commissioning of the new vacuum breakers, and proper disposal of oil and removed equipment.

Background / Justification

The [redacted]

The overall Eversource initiative to eliminate oil filled circuit breakers was presented to PURA within docket number 14-05-06. This initiative was created to decrease Eversource's environmental exposure to oil spills and leaks as well as replace a vital component of aging substation infrastructure. The initiative started by targeting OCBs with PCB bushings. In 2012, the initiative increased in scope to include all substation OCBs. The initial justification was based on the anticipated risk of potential environmental damage in case of an PCB bushing/breaker catastrophic failure.

Business Process and / or Technical Improvements:

This project will replace obsolete equipment and increase reliability. The benefit to customers is improved reliability and reduced environmental risk. This benefit will be realized by replacing aging oil filled equipment, which presents an environmental concern.

Alternatives Considered with Cost Estimates

Replace the [redacted]

[redacted]s would be categorized as an Expense project. The cost for this alternative could be as high as $40 to $50K per breaker. This alternative does not address the PURA initiative.

Do nothing. [redacted]

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Project Approval	March 2020
Engineering	March 2020
Construction start	March 2020
Construction finish	May 2020
Project close-out	Q3 2020

Regulatory Approvals

N/A

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
System abnormal configuration	2020	Medium Impact	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.
SCLL's	2020	Medium Impact	All SCLL conditions will be resolved prior to construction start. Field coordination will be performed as part of the outage requests.

References

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

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

- Diagram 1 - Nomenclature diagram indicating equipment upgrade location



Diagram 1 - Nomenclature diagram indicating equipment upgrade location

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] – OCB Replacement					**PAF No: CS00378**	
Facility Type: ☐ BPS	☐ BES	☐ PTF	☐ non-PTF	☐ CIP	☒ Distribution	
PLANNING						
Is a NX-9 required?					Yes	
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?					No	
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?					Yes	
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] – OCB Replacement	**PAF No: CS00378**
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 the Eversource Estimating Team
Who prepared the estimate?	[redacted]
Was the estimate reviewed by Eversource Estimating?	Yes

Cost Estimate Backup Details

See attached estimate

ESTIMATE SUMMARY

Project Title: [redacted] SS OCB Emergent Replacement

Project Mgr/Lead: [redacted]

Project Number: CS00378
WO&Task#:
Est. Revision # 00

Estimate By: [redacted]

Date of Estimate: 3/12/2020

ISD: 3/24/2020

Estimate # C-20-139

Template Revision # 01.3

ESTIMATE SUMMARY

Estimate Type: Order of Magnitude

WBS		TOTAL	% of Total	Prior	2020	2021	2022	2023	2024	2025
1	Construction	$813,100	44.4%		$813,100					
2	Engineering / Design	$50,200	2.7%		$50,200					
3	Land									
4	Material	$162,100	8.8%		$162,100					
5	Project Mgmt. & Sppt.	$16,800	0.9%		$16,800					
6	Removal	$50,000	2.7%		$50,000					
7	Test	$84,100	4.6%		$84,100					
8	Risk / Contingency	$145,000	7.9%		$145,000					
9	Escalation									
10	Indirects	$452,900	24.7%		$452,900					
11	AFUDC	$58,700	3.2%		$58,700					
	Total Cost	**$1,832,900**	100.0%		**$1,832,900**					

Estimate Range	**-50%**	-	**200%**
	$916,000	-	**$5,499,000**

NOTE: Risk / Contingency is 8.6% of Project Costs (incl escal/indirects/AFUDC)

COMMENTS:

Project Scope:

Scope:

[redacted]

NOTE: for assumptions see Estimate Basis

Clarifications:

Indirect rates based on: [redacted] Station work

- Existing foundations to be re-used
- based on internal construction, testing, engineer and construction support
- OCB oil disposal is based upon previous estimate costs

Risks

Field Conditions do not match Engineering Deliverables	$	75,000
Severe Weather, Delays, OT	$	50,000
Design development	$	20,000

Project Number: CS00378

Project Title: [redacted] SS OCB Emergent Replacement

Escalated Line Item Dollars

Project Number: CS00378
Date of Estimate: 3/12/2020
Est. Revision # 00
Template Revision # 01.3

PAF	Cover	WBS	C&TXX-CONSTRUCTION	R		Prior actuals to date Mhrs	Prior actuals to date DOLLARS	2020 Mhrs	2020 DOLLARS	2021 Mhrs	2021 DOLLARS	2022 Mhrs	2022 DOLLARS	2023 Mhrs	2023 DOLLARS	2024 Mhrs	2024 DOLLARS	2025 Mhrs	2025 DOLLARS	TOTAL Mhrs	TOTAL DOLLARS
			Electrical Construction	LT																	
			General Construc ion	LT																	
			Transmission Automation	LT																	
			Construction Reps (Internal)	LT					$28,428												$28,428
			Support Switch/Tag	LT																	
			Other (specify)	LT																	
			Other (specify)	LT																	
			Other (specify)	LT																	
			LT Total						$28,428												$28,428
			Employee Expenses	AE	6%				$1,421												$1,421
			Construction Purchased Material	AM	1%				$7,832												$7,832
			Outside Construction Vendor	AQ					$783,244												$783,244
			Sales tax on Constr. Vendor																		
			Vehicles (now in indirects section)	AV																	
			Construction Rep (BHI vendor)	AQ																	
			Rents and Leases	BR																	
			C&TXX Subtotal						$820,925												$820,925
			Escalation						$ -		$ -		$ -		$ -		$ -		$ -		$ -
				P1																	
			C&TXX Total						$820,925												$820,925
			ENRXX-TG ENGINEERING/DESIGN																		
			Project Services/Drafting	LT					$5,562												$5,562
			Transmission Engineering/Design	LT																	
			Civil Engineering/Design	LT					$2,225												$2,225
			Substation Engineering/Design	LT					$29,664												$29,664
			Distribution SS Engineering/Design	LT					$7,416												$7,416
			Protection & Controls Engineering	LT					$2,966												$2,966
			Survey Engineering	LT																	
			Telecom Engineering	LT																	
			LT Total						$47,833												$47,833
			Employee Expenses	AE	5%				$2,392												$2,392
			Contractor Engineering - T-Lines	AQ																	
			Contractor Engineering - T -Station	AQ																	
			Contractor Engineering - P&C	AQ																	
			Contractor Engineering - Survey	AQ																	
			Contractor Engineering - Specify	AQ																	
			Contractor Engineering - Specify	AQ																	
			Vehicles (now in indirects section)	AV																	
			ENRXX Subtotal			-			$50,225	-		-		-		-		-		$50,225
			Escalation																		
				P1																	
			ENRXX Total			-			$50,225	-		-		-		-		-		$50,225
			LNDXX-TG LAND																		
			Real Estate	LT																	
			Employee Expenses	AE	6%																
			Purchase Land	AM																	
			Vehicles (now in indirects section)	AV																	
			Fees and Payments	BF																	
			LNDXX Subtotal			-		-		-		-		-		-		-		-	
			Escalation																		
				P1																	
			LNDXX Total			-		-		-		-		-		-		-		-	
			MATXX-TG MATERIAL																		
			Eversource	AM																	
			Outside Services	AM					$148,430												$148,430
				AM																	
			Freight																		
			Sales Tax Eversouce/outside services		4%				$5,800												$5,800
			Other																		
			MATXX Subtotal						$154,230												$154,230
			Escalation																		
				P1																	
			MATXX Total						$154,230												$154,230
			PSMXX-PROJECT MANAGER & SUPPORT																		
			Project Management (PM)	LT					$9,888												$9,888
			Project Planning/Cost (IP)	LT					$989												$989
			Contracts/Purchasing (C/P)	LT					$1,978												$1,978
			System Planning	LT																	
			Environmental	LT																	
			SCS - None	LT																	
			Legal	LT																	
			Estimating	LT																	
			Siting - None	LT																	
			Asset Management	LT					$989												$989
			Other -	LT																	
			Other -	LT																	
			Other -	LT																	
			Other -	LT																	
			LT Total						$13,844												$13,844
			Employee Expenses	AE	5%				$692												$692
			Project Support Vendor - PM	AQ						-		-		-		-		-			
			Project Support Vendor - IP	AQ						-		-		-		-		-			
			Project Support Vendor - C/P	AQ						-		-		-		-		-			
			Project Support Vendor - System Planning	AQ						-		-		-		-		-			
			Project Support Vendor - Enviromental	AQ					$2,240	-		-		-		-		-		$2,240
			Project Support Vendor - SCS - None	AQ						-		-		-		-		-			
			Project Support Vendor - Legal	AQ						-		-		-		-		-			
			Project Support Vendor - Estimating	AQ						-		-		-		-		-			
			Project Support Vendor - Siting - None	AQ						-		-		-		-		-			
			Project Support Vendor - Asset Management	AQ						-		-		-		-		-			
			Project Support Vendor - Other	AQ						-		-		-		-		-			
			Project Support Vendor - Other	AQ						-		-		-		-		-			
			Project Support Vendor - Other	AQ						-		-		-		-		-			
			Project Support Vendor - Other	AQ						-		-		-		-		-			
			Vehicles (now in indirects section)	AV																	
			Include allowance for Property tax large proj.	BR																	
			Fees and Payments - Enviromental	BF																	
			Fees and Payments - Siting	BF																	
			Fees and Payments - Other	BF																	
			PSMXX Subtotal			-			$16,776	-		-		-		-		-			$16,776
			Escalation																		
				P1																	
			PSMXX Total			-			$16,776	-		-		-		-		-			$16,776
			REMXX-TG REMOVAL																		
			Engineering/Design	LT																	
			Internal Construction	LT																	
			LT Total																		
			Employee Expenses	AE	16%																
			Outside Services	AO																	
			Contractor Labor	AQ					$50,000												$50,000
			Vehicles (now in indirects section)	AV																	
			Rents and Leases	BR																	
			REMXX Subtotal			-		-	$50,000	-		-		-		-		-		-	$50,000
			Escalation																		
				P1																	
			REMXX Total			-		-	$50,000	-		-		-		-		-		-	$50,000
			T&TXX-TG T&T																		
			Test / Field Engr. Labor (In House)	LT					$30,653												$30,653
			Lead Commissioning Engr. (LCE) (Internal)	AQ																	
			Employee Expense	AE	10%				$3,065												$3,065
			Test / Field Engr. Labor (contractor)	AQ																	
			Lead Commissioning Engr. (LCE) (contactor)	AQ					$50,400												$50,400
			Vehicles (now in indirects section)	AV																	
			T&TXX Subtotal						$84,118												$84,118
			Escalation																		
				P1																	
			T&TXX Total						$84,118												$84,118
			SUBTOTAL PROJECT DIRECT COST			-			$1,178,274	-		-		-		-		-			$1,178,274
			Risk / Contingency																		
			Risk						$145,000												$145,000
			Contingency																		
			Risk / Contingency Total						$145,000												$145,000
			TOTAL PROJECT DIRECT COST			-			$1,321,274	-		-		-		-		-			$1,321,274
			INDIRECTS																		
			Non-Productive Time Allocation (ZB)	58	16.1%				$18,174												$18,174
			Payroll Benefits Allocation (ZE) Incl NPT	59	42.6%				$28,909												$28,909
			Gen SVC CO Overhead (ZF) Incl NPT	60	78.8%				$56,459												$56,459
			S&S Allocations (ZI)	61	50.0%				$333,058												$333,058
			AG&E Allocations (ZJ)	62	0.6%				$7,258												$7,258
			Stores Expense Allocation (ZC)	62																	
			Lobby Stock																		
			MDEC																		
			Vehicles		7.6%				$9,057												$9,057
			AFUDC (ZK)	63					$58,733	0		0		0		0		0		0	$58,733
			Indirects Subtotal						$511,658												$511,658
			Reimbursables/Customer Contribution	59																	
			TOTAL PROJECT COST			-			$1,832,932	-		-		-		-		-			$1,832,932