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Operations Project Authorization Form

Approved on May 25, 2023 EPAC

Link to Meeting Minutes

Project Title: [redacted] **OCB Replacement & Bus Rehabilitation Phase 3**	**Project Number: CS00245**
Date Prepared: 05/15/2023	**Company: Eversource CT**
Organization: Asset Management	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - General**
Managing Organization: Transmission / Major Projects	**Schedule ID#: 80238116**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Estimated in service date: April 2027	**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: $20.126M	**Authorization Type: Full Funding**

[1] Executive Summary

[redacted]

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[redacted] and Bus Rehabilitation work for the [redacted].

PHASE	PROJECT	Qty OCBs	Qty Reactors	Qty Switches	In Service Date	STATUS
[redacted]						

[redacted]

[redacted]

[redacted]

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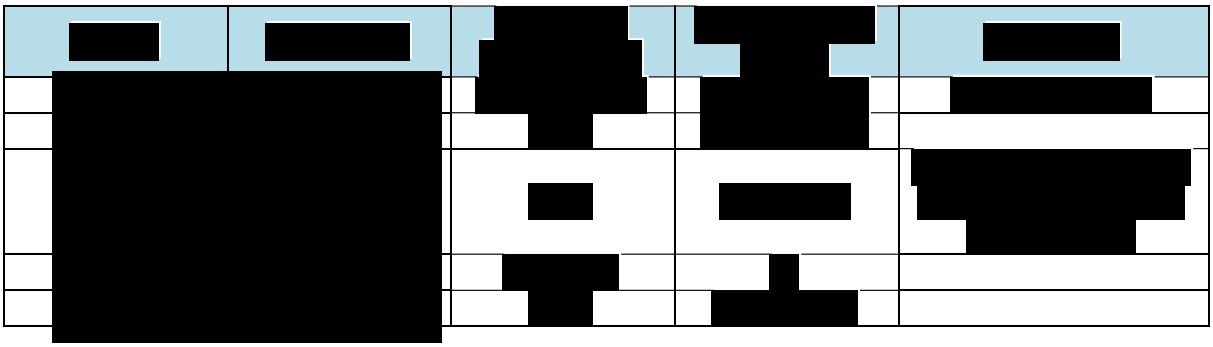

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[2] Project Costs Summary

Note: Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date *	2023 to Go	2024	2025	2026	2027	2028	Total Request
1. ROW / Easements / Land Acquisition									
2. Environmental Approvals / Permits		$3							$3
3. Outreach		$0							$0
4. Siting Approvals / Permits									
5. Engineering / Design		$119	$86	$150	$156	$161	$79		$752
6. Materials (Eversource purchased)			$185	$381	$389	$397	$202		$1,554
7. Construction (incl materials by contractors)		$0	$394	$828	$861	$887	$457		$3,426
8. Testing / Commissioning			$209	$438	$456	$469	$242		$1,813
9. Project Mgmt. Team		$8	$47	$57	$59	$61	$33		$265
10. Removals		$4	$73	$150	$154	$159	$82		$623
11. Other									
12. Risks			$203	$335	$335	$335	$193		$1,400
SUBTOTAL DIRECTS W/ RISKS		**$135**	**$1,196**	**$2,338**	**$2,410**	**$2,468**	**$1,288**		**$9,835**
13. Indirects/Overhead		$47	$887	$1,810	$1,882	$1,939	$1,003		$7,569
14. AFUDC		$5	$80	$290	$574	$880	$285		$2,114
PROJECT TOTAL – BASELINE BUDGET	**$802**	**$187**	**$2,163**	**$4,438**	**$4,866**	**$5,287**	**$2,576**		**$19,518**
15. Contingency			$80	$151	$151	$151	$77		$609
TOTAL CAPITAL REQUEST	**$802**	**$187**	**$2,243**	**$4,589**	**$5,017**	**$5,438**	**$2,653**		**$20,126**
16. Reimbursables/Customer Contribution									
PROJECT TOTAL (LESS REIMBURSABLES)	**$802**	**$187**	**$2,243**	**$4,589**	**$5,017**	**$5,438**	**$2,653**		**$20,126**
O&M									
TOTAL REQUEST	**$802**	**$187**	**$2,243**	**$4,589**	**$5,017**	**$5,438**	**$2,653**		**$20,126**

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Detail other costs, project risk items and their allocations:

Risk	Allocation
1. Potential UG Obstructions	$80K
2. Severe Weather, Delays, OT	$160K
3. Design development	$105K
4. Foundation repairs	$185K
5. Conduit and cable added requirements	$ 90K
6. Soil Contamination risk	$160K
7. Mobile Transformer required.	$400K
8. Ground grid modifications for possible foundation revisions and conduit replacement	$40K
9. Oil disposal.	$80K
10. Testing	$100K
Total	$1,400K

Explain unique payment provisions, if applicable: NA

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

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[3] Technical Justification

Project Need, Objective and Justification

[redacted] the spring and autumn seasons to avoid peak load periods during winters and summers.

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[redacted]

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Project Scope

[redacted]

Substation Equipment (See attachment D)

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

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

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Station	Device Position / Nomenclature	Device Removals	Device Additions
[redacted]			

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

[redacted]

Background

[redacted]

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[redacted]

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[4] Alternatives Considered

[redacted]

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[5] PROJECT SCHEDULE

Milestone	Scheduled Completion Date
IFR Approval	June 2017
SDC Approval (for applicable projects)	NA
Conversion of Tx development costs	NA
EPAC Partial Funding Approval	NA
Preliminary Design Completion	February 2023
EPAC Full Funding Approval	May 2023
Siting Approval	NA
Start of Construction	September 2023
Project In-Service Date (ISD)	April 2027
Project Need Date (for applicable projects)	NA
ISO Related Milestones: (for applicable projects)	
• ISO Preferred Alternative Selected	NA
• PAC Presentation	NA
• TCA Submittal	NA

See Attachment B for the P6 schedule.

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[6] Regulatory Approvals

N/A

[7] Risk and Risk Mitigation Plans

Contingency: A contingency of $609K has been included to allow for any unknown costs which may come up during the progression of the project.

Risk Mitigation:

Risk	Mitigation
1. Potential UG Obstructions	Be flexible with construction and have alterative paths and solutions to conduit installations. Risk allocation is included to address this risk.
2. Severe Weather, Delays, OT	Monitor weather and reschedule work, if possible, to avoid severe weather. Risk allocation is included to address this risk.
3. Design development	Weekly project meeting meetings to discuss project status and schedule to ensure we are all on track. Risk allocation is included to address this risk.
4. Foundation repairs	Foundations have been reviewed during constructability review and repairs are not expected. Further review will be done by the design contractor to confirm. A risk allocation has been included in case a need arises.
5. Conduit and cable added requirements	Check design and bill of materials during detail design to ensure that all conduit and cable has been accounted for. Risk allocation is included to address this risk.
6. Soil Contamination risk	Foundations have been reviewed during constructability review and no new foundation are expected but risk allocation has been included in case a need that foundations are required and there is soil contamination necessitating soil removal.
7. Mobile Transformer required	Need for a mobile transformer has been reviewed and is not expected but risk allocation has been included in case a need arises.
8. Ground grid modifications for possible foundation revisions and conduit replacement	Foundations have been reviewed during constructability review and no new foundations are expected but risk allocation has been included in case foundations are required and there is a need for ground grid modifications.
9. Oil disposal	Oil disposal is included in the costs of the normal oil circuit breaker replacement and no additional oil disposal costs are expected. A risk allocation has been included in case a need for oil disposal beyond the normal breaker costs.
10. Testing	Testing costs have been included in the estimate but risk allocation has been included in case initial testing fails the need for a second set of tests is needed.

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[8] REFERENCES

References
1. CS00394 [redacted] - OCB Replacement Phase 1 – PAF (See EPAC Mtg 2020-09-30)
2. CS00395 [redacted] - OCB Replacement Phase 2 – PAF (See EPAC Mtg 2021-01-20)
3. Eversource Substation Standards SUB 018
4. [redacted] Bus Rehab 201438 (Initiated 2011-01-18)

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

Attachment	Included in Submittal?
A. Cost Estimate - CS00245 C-23-178 OCB Bus Rehab - [redacted] EST rev#01	YES
B. P6 Schedule - 230410 [redacted] 0245 Remaining Schedule	YES
C. Constructability Review - CS00245 Const Walkdown Review Form [redacted] 2023-02-16	YES
D. System and Station One-Lines - CS00245 [redacted] OCB Repl & Bus Rehab PH 3 Nom Diagram	YES

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Project Checklist - Transmission & Substation Capital Project			
Project Name: [redacted] **OCB Replacement Phase 3**		**Project Number: CS00245**	
Facility Type: ☐BPS ☐BES ☐PTF ☐PTF non-regional ☐non-PTF ☐CIP ☒Distribution ☐General Plant			
PLANNING			
Is a NX-9 required?		No	
Is an ISO-NE PAC presentation required?		No	
ISO-NE Presentation Date (if completed):		NA	
Cost in ISO-NE Presentation ($M) (if completed):		NA	
Is a PPA required?		No	
ISO-NE Approval Date (if completed):		NA	
Is a TCA Application Required?		No	
TCA Submittal Date (if submitted):		NA	
Cost in TCA Submittal ($M) (if submitted):		NA	
Enter ISO-NE RSP / Asset Condition ID, if assigned:		NA	
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?		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	

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Project Checklist - Transmission & Substation Capital Project	
Project Name: [redacted] - OCB Replacement Phase 3	**Project Number: CS00245**
P&C ENGINEERING	
OP-22 - Are PMUs and DDR required?	No
If BPS, is an NPCC Directory #4 presentation required?	No
Are ISO-NE OP-24 Appendix B updates necessary?	No
TRANSMISSION LINE ENGINEERING	
Are there any changes that affect the baseline EMF?	No
Are there any changes that affect the baseline EMI?	No
SITING	
Has Siting reviewed this project?	Yes
Name of Siting contact:	[redacted]
Is a Siting filing required? *(If yes, list in regulatory approvals section)*	No
PERMITTING	
Is there any permitting required? *(If yes, list in regulatory approvals section)*	No
PROJECT SERVICES (OUTREACH) and ROW WORK COORDINATION	
Has Project Services reviewed this project?	Yes Choose an item
Name of Project Services contact:	[redacted]
What is the level of outreach expected?	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?	Yes
INITIATOR	
Has a field constructability review been completed?	Yes
INVESTMENT RECOVERY	
Does the project require development of an Investment Recovery plan?	No
COST ESTIMATING	
What team/firm prepared the cost estimate?	Estimate was prepared by the Eversource Estimating Team
Name of the person who prepared the estimate:	[redacted]
Was the estimate reviewed by Eversource Estimating?	Yes - Full Review

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ESTIMATE SUMMARY

Project Title: [redacted] OCB replacement & Bus Rehab Ph 3
Project Mgr/Lead: [redacted]

Project Number: CS00245
WO & Task #: 80238116
Estimate revision #: 01
Estimate Type - Station work

Estimate #: C-23-178
Date of Estimate:05/10/2023

Estimate done by: [redacted]
In Service date (ISD):04/04/2027

ESTIMATE SUMMARY

Estimate Type: Planning
External Est Category:

WBS	Description	TOTAL	% of Directs	% of Total	Priors	2023	2024	2025	2026	2027
1	ROW / Easements / Land purchases									
2	Environmental Approvals / Permits	$3,100	0.0%	0.0%	$3,100					
3	Outreach									
4	Siting Approvals / Permits									
5	Engineering / Design	$751,600	7.6%	3.7%	$119,000	$86,200	$150,100	$156,100	$160,800	$79,400
6	Materials (Eversource purchased)	$1,553,800	15.8%	7.7%		$184,900	$381,100	$388,800	$396,700	$202,300
7	Construction (incl materials by contractors)	$3,425,600	34.8%	17.0%	$100	$394,100	$827,600	$860,700	$886,500	$456,600
8	Testing / Commissioning	$1,813,200	18.4%	9.0%		$208,600	$438,100	$455,600	$469,200	$241,700
9	PMT Project Mgmt Team	$265,000	2.7%	1.3%	$8,100	$47,100	$56,700	$59,000	$60,700	$33,400
10	Removals	$622,700	6.3%	3.1%	$4,400	$72,800	$150,000	$154,500	$159,100	$81,900
11	Other									
12	Risks	$1,400,000	14.2%	7.0%		$202,500	$335,000	$335,000	$335,000	$192,500
125										
	Project Directs Total w/Risks	**$9,835,000**	100.0%	48.9%	**$134,700**	**$1,196,200**	**$2,338,600**	**$2,409,700**	**$2,468,000**	**$1,287,800**
13	Indirects/Overhead	$7,568,600		37.6%	$47,400	$887,200	$1,809,900	$1,882,300	$1,938,800	$1,003,000
14	AFUDC	$2,114,000		10.5%	$4,800	$79,900	$289,700	$574,300	$879,900	$285,400
125										
	Project Total - Baseline Budget	**$19,517,600**		97.0%	**$186,900**	**$2,163,300**	**$4,438,200**	**$4,866,300**	**$5,286,700**	**$2,576,200**
15	Contingency	$608,900		3.0%		$79,800	$150,800	$150,800	$150,800	$76,700
	Project Total - Funding Approval Level	**$20,126,500**		100.0%	**$186,900**	**$2,243,100**	**$4,589,000**	**$5,017,100**	**$5,437,500**	**$2,652,900**
16	Reimbursables/Customer Contribution									
126										
	Project Total (less reimbursables)	**$20,126,500**			**$186,900**	**$2,243,100**	**$4,589,000**	**$5,017,100**	**$5,437,500**	**$2,652,900**
	Cost per key qty (if appl)	1,059,289	$'s / EA OCB replacements with VCB							
	Amount of Escalation included above	$1,194,500					$172,300	$316,100	$431,000	$275,100
6	Total materials - Eversource	$1,553,800				$184,900	$381,100	$388,800	$396,700	$202,300
	Total materials - Contractor									
	Total materials	$1,553,800				$184,900	$381,100	$388,800	$396,700	$202,300
	NOTE: Risk / Contingency is 11.1% of Project Total Costs (incl escal/indirects/AFUDC but excl reimb.)									

Estimate Range	**-25%**	-	**25%**
	$15,095,000	-	**$25,158,000**

COMMENTS:

Project Scope:
Key qty's and UOM (tie to inputs on est sheets)

19 EA OCB replacements with VCB

12.95 Factor (total $/Eversource Mat'l $'s)

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

[redacted]

Assumptions/Clarifications:

[redacted]

RISKS

Potential UG Obstructions	$ 80,000
Severe Weather, Delays, OT	$ 160,000
Design development	$ 105,000
Foundation repairs	$ 185,000
Conduit and cable added requirements	$ 90,000
Soil Contamination risk	$ 160,000
Mobile Transformer required.	$ 400,000
Ground grid modifications for possible foundation revisions and conduit replacement	$ 40,000
Oil disposal.	$ 80,000
Testing	$ 100,000

Alt Estimate Summary for PP4 Calc (escalation separate)

Estimate #: C-23-178
Date of Estimate:05/10/2023

Project Number: CS00245
WO & Task #: 80238116

		TOTAL w/ escal broken out
ROW / Easements / Land purchas	$	-
Environmental Approvals / Permit	$	3,100
Outreach	$	-
Siting Approvals / Permits	$	-
Engineering / Design	$	702,600
Materials (Eversource purchased)	$	1,479,300
Construction (incl materials by cc	$	3,152,800
Testing / Commissioning	$	1,668,800
PMT Project Mgmt Team	$	246,000
Removals	$	586,700
Other	$	-
Risks	$	1,400,000
		$9,239,300
Indirects/Overhead	$	6,971,700
AFUDC	$	2,113,900
	$	-
		$18,324,900
	$	-
Contingency	$	608,900
		$18,933,800
	$	-
	$	-
		$18,933,800
	$	1,194,500
Escal total		**$20,128,300**
Check total		$1,800

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UNESCALATED LINE ITEM DOLLARS 17600

Project Number [redacted] OCB reolacement & Bus Rehab Ph 3
Date of Estimate 05/19/2023
Estimate revision #: 01

Escalation Rate — E Rate $ 57

			Prior		2023		2024	1	2025	2	2026	3	2027	4	TOTAL	
			Mhrs	DOLLARS	Mhrs	DOLLARS	Mhrs	DOLLARS	Mhrs	DOLLARS	Mhrs	DOLLARS	Mhrs	DOLLARS	Mhrs	DOLLARS
CSTXX-CONSTRUCTION	R															
Electrical Construction	LT					$352,656		$705,312		$705,312		$705,312		$352,656		$2,821,247
General Construction	LT	$ 48.80		$70												$70
SCADA / Automation	LT	$ 54.10				$2,164		$4,328		$4,328		$4,328		$2,164		$17,312
Telecom - Field	LT	$ 50.90														
Construction Reps (internal)	LT	$ 54.10				$17,988		$35,977		$35,977		$35,977		$17,988		$143,907
Support Switch/Tag	LT	$ 63.03				$2,521		$5,042		$5,042		$5,042		$2,521		$20,168
Other (specify)	LT	$ -														
Other (specify)	LT	$ -														
Other (specify)	LT	$ -														
LT Total				$70		$375,329		$750,659		$750,659		$750,659		$375,329		$3,002,794
Employee Expenses	AE	5%				$18,766		$37,533		$37,533		$37,533		$18,766		$150,131
Construction Purchased Material	AM	1%				$3,527		$7,053		$7,053		$7,053		$3,527		$28,213
Outside Construction Vendor	AQ				0		0		0		0		0		0	
Sales tax on Constr. Vendor																
Vehicles (now in indirects section)	AV															
Inspection services (Outside Vendor)	AQ	$ 152.00														
Construction Rep (Outside vendor)	AQ	$ 152.00														
Rents and Leases	BR															
CSTXX Subtotal				$70		$397,822		$795,245		$795,245		$795,245		$397,622		$3,181,048
Escalation																
CSTXX Total				$70		$397,622		$795,245		$795,245		$795,245		$397,622		$3,181,048
ENRXX-TG ENGINEERING/DESIGN																
Project Services/Drafting	LT	$ 49.90				$998		$998		$998		$998		$998		$4,990
T- Line Engineering/Design	LT	$ 49.90														
D- Street Engineering/Design	LT	$ 49.90														
Civil Engineering/Design	LT	$ 49.90				$1,497		$2,495		$2,495		$2,495		$1,497		$10,479
Substation (T) Engineering/Design	LT	$ 54.10														
Substation (D) Engineering/Design	LT	$ 54.10		$10,157		$1,623		$2,705		$2,705		$2,705		$1,623		$21,518
Protection & Controls Engineering	LT	$ 58.40				$1,168		$2,336		$2,336		$2,336		$1,168		$9,344
Survey Engineering	LT															
SCADA / Automation Engineering	LT	$ 57.30				$573		$1,146		$1,146		$1,146		$573		$4,584
Telecom Engineering	LT	$ 57.30														
Other - specify	LT	$ -														
Other - specify	LT	$ -														
LT Total				$10,157		$5,859		$9,680		$9,680		$9,680		$5,859		$50,915
Employee Expenses	AE	5%				$293		$484		$484		$484		$293		$2,038
Contractor Engineering - T-Lines	AQ	$ 161.00														
Contractor Engineering - D-Street	AQ	$ 161.00														
Contractor Engineering - T -Station	AQ	$ 162.00														
Contractor Engineering - D-Station	AQ	$ 162.00														
Contractor Engineering - P&C	AQ	$ 163.00														
Contractor Engineering - Survey	AQ															
Contractor Engineering - SCADA / Automation	AQ	$ 160.00														
Contractor Engineering - Telecom	AQ	$ 160.00														
Contractor Engineering - RLC Eng. LLC Foundation Evaluation	AQ	$ 160.00		$102,689		$16,000		$16,000		$16,000		$16,000		$9,600		$176,289
Contractor Engineering -TRC Eng.	AQ	$ 160.00		$6,181		$64,000		$116,800		$116,800		$116,800		$52,800		$473,381
Contractor Engineering - Specify	AQ	$ 160.00														
Vehicles (now in indirects section)	AV															
ENRXX Subtotal				$119,026		$86,152		$142,964		$142,964		$142,964		$68,552		$702,622
Escalation																
ENRXX Total				$119,026		$86,152		$142,964		$142,964		$142,964		$68,552		$702,622
LNDXX-TG LAND																
Real Estate	LT	$ 58.50														
Employee Expenses	AE	5%														
Purchase Land	AM															
Easements	AM															
Vehicles (now in indirects section)	AV															
Fees and Payments	BF															
LNDXX Subtotal																
Escalation																
LNDXX Total																
MATXX-TG MATERIAL																
Eversource	AM					$174,583		$349,166		$349,166		$349,166		$174,583		$1,396,662
Outside Services	AM															
	AM															
Freight																
Sales Tax Eversource/outside services	3.9%	3.9%				$6,800		$13,600		$13,600		$13,600		$6,800		$54,400
Other																
MATXX Subtotal						$181,383		$362,766		$362,766		$362,766		$181,383		$1,451,062
Escalation																
MATXX Total						$181,383		$362,766		$362,766		$362,766		$181,383		$1,451,062
PSMXX-PROJECT MANAGER & SUPPORT																
Project Management (PM)	LT	$ 56.20		$4,101		$22,480		$33,720		$33,720		$33,720		$11,240		$138,981
Project Planning/Cost (IP)	LT	$ 50.90				$6,108		$12,216		$12,216		$12,216		$12,216		$54,972
Contracts/Purchasing (CP)	LT	$ 55.20				$1,104		$1,104		$1,104		$1,104		$1,104		$5,520
System Planning	LT	$ 73.20		$1,995		$2,928		$4,392		$4,392		$4,392		$2,928		$21,027
Environmental	LT															
SCS - None	LT			$17												$17
Legal	LT	$ 98.70														
Estimating	LT	$ 61.00														
Siting - None	LT															
Asset Management	LT	$ 58.40		$2,000												$2,000
Other -	LT	$ 59.40														
Other -	LT	$ -														
Other -	LT	$ -														
Other -	LT	$ -														
LT Total				$8,113		$32,620		$51,432		$51,432		$51,432		$27,488		$222,517
Employee Expenses	AE	5%				$1,631		$2,572		$2,572		$2,572		$1,374		$10,721
Project Support Vendor - PM	AQ	$ 160.00														
Project Support Vendor - IP	AQ	$ 160.00														
Project Support Vendor - CP	AQ	$ 160.00														
Project Support Vendor - System Planning	AQ	$ 160.00														
Project Support Vendor - Environmental Randstad	AQ			$3,115												$3,115
Project Support Vendor - SCS - None	AQ															
Project Support Vendor - Legal	AQ	$ 160.00														
Project Support Vendor - Estimating	AQ	$ 160.00				$12,800										$12,800
Project Support Vendor - Siting - None	AQ															
Project Support Vendor - Asset Management	AQ	$ 160.00														
Project Support Vendor - Other	AQ	$ 160.00														
Project Support Vendor - Other	AQ	$ 160.00														
Project Support Vendor - Other	AQ	$ 160.00														
Project Support Vendor - Other	AQ	$ 160.00														
Vehicles (now in indirects section)	AV															
Property or CWIP tax large proj. allowance	BR															
Builder All risk insurance excluding deductables(if project is over $50m)	BR															
Fees and Payments - Environmental	BF															
Fees and Payments - Siting	BF															
Fees and Payments - Other	BF															
PSMXX Subtotal				$11,228		$47,051		$54,004		$54,004		$54,004		$28,862		$249,153
Escalation																
PSMXX Total				$11,228		$47,051		$54,004		$54,004		$54,004		$28,862		$249,153
REMXX-TG REMOVAL																
Engineering/Design- Randstad Environmental	LT	$ 57.30		$4,360												$4,360
Internal Construction	LT					$63,302		$126,604		$126,604		$126,604		$63,302		$506,416
LT Total				$4,360		$63,302		$126,604		$126,604		$126,604		$63,302		$510,776
Employee Expenses	AE	15%				$9,495		$18,991		$18,991		$18,991		$9,495		$75,963
Outside Services	AQ															
Contractor Labor	AQ					$0		$0		$0		$0		$0		-$2
Vehicles (now in indirects section)	AV															
Rents and Leases	BR															
REMXX Subtotal				$4,360		$72,797		$145,595		$145,595		$145,595		$72,797		$586,738
Escalation																
REMXX Total				$4,360		$72,797		$145,595		$145,595		$145,595		$72,797		$586,738
TSTXX-TG TEST																
Test / Field Engr. Labor (In House)	LT	$ 64.00														
Lead Commissioning Engr. (LCE) (internal)	LT	$ 64.00														
Employee Expense	AE	10%														
Test / Field Engr. Labor (contractor)	AQ	$ 191.00				$131,599		$263,198		$263,198		$263,198		$131,599		$1,052,792
Lead Commissioning Engr. (LCE) (contactor)	AQ	$ 220.00				$77,000		$154,000		$154,000		$154,000		$77,000		$616,000
Vehicles (now in indirects section)	AV															
TSTXX Subtotal						$208,599		$417,198		$417,198		$417,198		$208,599		$1,668,792
Escalation																
TSTXX Total						$208,599		$417,198		$417,198		$417,198		$208,599		$1,668,792
SUBTOTAL PROJECT DIRECT COST			-	$134,685		$993,603		$1,917,771		$1,917,771		$1,917,771		$957,814		$7,839,415
Risk																
Risk						$202,500		$335,000		$335,000		$335,000		$192,500		$1,400,000
						$ -		$ -		$ -		$ -		$ -		
						$ -		$ -		$ -		$ -		$ -		
Risk Total						$202,500		$335,000		$335,000		$335,000		$192,500		$1,400,000
TOTAL PROJECT DIRECT COST (w risk)			-	$134,685		$1,196,103		$2,252,771		$2,252,771		$2,252,771		$1,150,314		$9,239,415
INDIRECTS																
Non-Productive Time Allocation (**ZNP**)	17.0%			$3,071		$81,109		$159,524		$159,524		$159,524		$80,236		$642,988
Payroll Benefits Allocation (**ZPB**) incl NPT	44.0%					$228,823		$456,598		$456,598		$456,598		$228,823		$1,827,440
Gen SVC CO Overhead (**ZGS**) incl NPT	80.0%			$13,939		$30,532		$48,140		$48,140		$48,140		$25,729		$214,620
E&S Allocations (**ZES, ZS1, ZES**)	28.0%			$21,772		$313,312		$602,738		$602,738		$602,738		$301,774		$2,445,072
AS&E Allocations (**ZAS**)	1.3%			$1,755		$20,592		$39,810		$39,810		$39,810		$19,930		$161,707
Stores Expense Allocation (**ZST**)	8.0%					$13,967		$27,933		$27,933		$27,933		$13,967		$111,733
Lobby Stock																
MDEC (**ZMI**)	6.0%			$6,759		$65,306		$126,270		$126,270		$126,270		$63,122		$513,997
Vehicles (**ZVE**)	28.0%			$140		$133,591		$262,745		$262,745		$262,745		$132,154		$1,054,120
Indirects Subtotal				$47,436		$887,232		$1,723,758		$1,723,758		$1,723,758		$865,735		$6,971,677
TOTAL PROJECT COST - Direct & Indirect (excl AFUDC)				$182,121		$2,083,335		$3,976,529		$3,976,529		$3,976,529		$2,016,049		$16,211,092
AFUDC																
AFUDC (ZK)				$4,753	6.50%	$79,855	6.50%	$289,747	6.50%	$574,287	6.50%	$879,894	6.50%	$285,412	1	$2,113,948
In Service Dollars / Land costs						-		-		-		-		-		
Cumulative ISS & Land Costs																
AFUDC Subtotal				$4,753		$79,855		$289,747		$574,287		$879,894		$285,412		$2,113,948
TOTAL PROJECT COST - Baseline Budget				$186,874		$2,163,190		$4,266,276		$4,550,816		$4,856,423		$2,301,461		$18,325,041
Contingency																
Contingency						$79,754		$150,828		$150,828		$150,828		$76,677		$608,916
Other			-	$ -		$ -		$ -		$ -		$ -		$ -		
Contingency SubTotal						$79,754		$150,828		$150,828		$150,828		$76,677		$608,916
TOTAL PROJECT COST - Approved Funding				$186,874		$2,242,945		$4,417,104		$4,701,644		$5,007,251		$2,378,138		$18,933,957
Reimbursables / Customer Contribution																
Reimbursables / Customer Contribution (enter as negative)				$ -		$ -		$ -		$ -		$ -		$ -		
TOTAL PROJECT COST				$186,874		$2,242,945		$4,417,104		$4,701,644		$5,007,251		$2,378,138		$18,933,957

5/31/2023 1:53 PM