EVERSOURCE
Project Authorization Form

Operations Project Authorization Form

Approved at March 04, 2020 EPAC
Link to Meeting Minutes

Date Prepared: February 25, 2020	**Project Title: [redacted] LTC Controllers Upgrade**
Company/ies: Eversource CT	**Project ID Number: CS00373**
Organization: Asset Management	**Class(es) of Plant: Distribution Substation**
Project Initiator: [redacted]	**Project Budget Category: Stations - Transformers**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Project Purpose: Replace failing and obsolete LTC controllers to increase reliability**
Estimated in service date: June 2020	**If Transmission Project, PTF/Non-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: $539K	

Financial Requirements:

Project Authorization

ERM: _____

FP&A: _____

Executive Summary

This full funding request of $539K is to replace the [redacted]

Eversource operations and engineering identified the [redacted] This project started under the annual WO DSQ92045 to address the tight schedule. The charges on the WO will be moved over to this project. Engineering has already been issued and materials ordered. A constructability review was completed on January 21, 2020. Construction work is in progress. [redacted]

[redacted]). The spend to date through January 31, 2020 is $5K.

Project Costs Summary

Note: Dollar values are in thousands

	Spend through 1/31/2020	Remaining 2020	Totals
Capital Additions - Direct	$ 4	$ 229	$ 233
Less Customer Contribution	$ -	$ -	$ -
Removals net of Salvage ____%	$ -	$ 9	$ 9
Total - Direct Spending	$ 4	$ 238	$ 242
Capital Additions - Indirect	$ 1	$ 279	$ 280
Subtotal Request	$ 5	$ 517	$ 522
AFUDC	$ -	$ 17	$ 17
Total Capital Request	$ 5	$ 534	$ 539
O&M	$ -	$ -	$ -
Total Request	$ 5	$ 534	$ 539

Financial Evaluation

Note: Dollar values are in thousands

Direct Capital Costs	Spend through 1/31/2020	Remaining 2020	Totals
Straight Time Labor	$ 4	$ 140	$ 144
Overtime Labor		$ -	$ -
Outside Services	$ -	$ 60	$ 60
Materials	$ -	$ 28	$ 28
Other, including contingency amounts (describe)	$ -	$ 9	$ 9
Total Direct Costs	$ 4	$ 238	$ 242
Indirect Capital Costs	Spend through 1/31/2020	Remaining 2020	Totals
Indirects/Overheads (including benefits)	$ 1	$ 279	$ 280
Capitalized interest or AFUDC, if any	$ -	$ 17	$ 17
Total Indirect Costs	$ 1	$ 296	$ 297
Total Capital Costs	$ 5	$ 534	$ 539
Less Total Customer Contribution			
Total Capital Project Costs	$ 5	$ 534	$ 539
Total O&M Project Costs			

Note: Explain unique payment provisions, if applicable: Other costs include $9K in contingency for storm/weather delays during construction.

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__	Year 20__	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

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

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: N/A
Note: Dollar values are in thousands

Future Benefits	Year 20__	Year 20__	Year 20__	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

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: No

Are there other environmental cleanup costs associated with this project? If yes, please provide details: N/A

Technical Justification:

Project Need Statement

[redacted]

Project Objectives

[redacted]

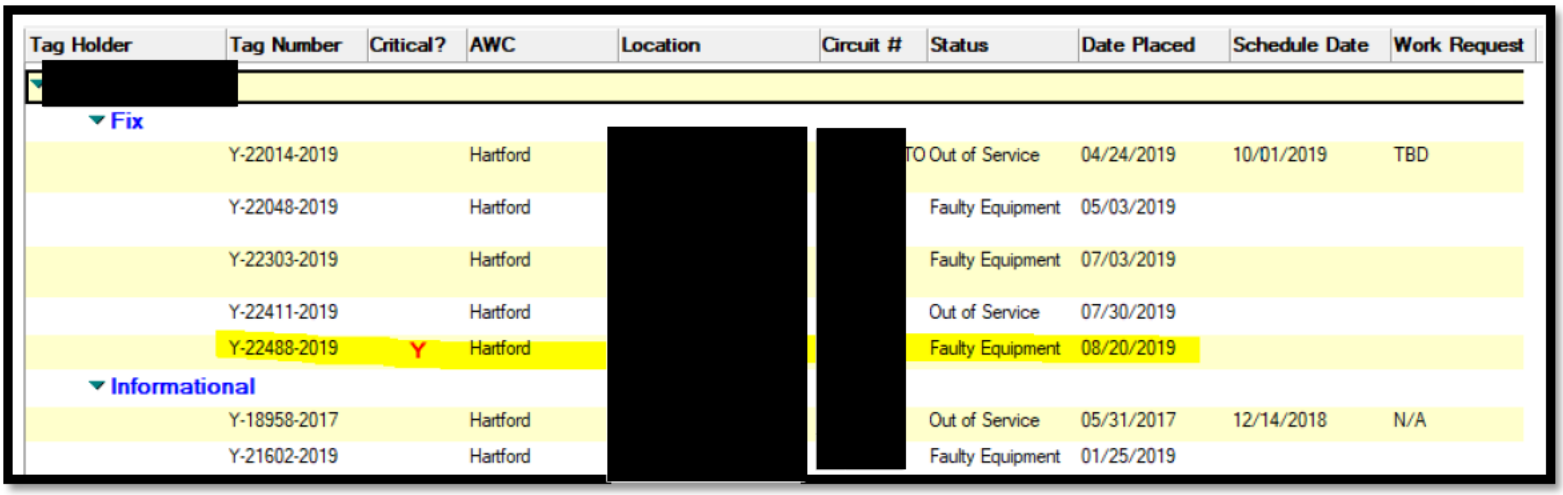
[redacted]

Background / Justification

[redacted]

See Figure 1 Tag report.

Figure 1. Tag Report



Tag Holder	Tag Number	Critical?	AWC	Location	Circuit #	Status	Date Placed	Schedule Date	Work Request
[redacted]									
Fix									
	Y-22014-2019		Hartford	[redacted]	[redacted]	TO Out of Service	04/24/2019	10/01/2019	TBD
	Y-22048-2019		Hartford			Faulty Equipment	05/03/2019		
	Y-22303-2019		Hartford			Faulty Equipment	07/03/2019		
	Y-22411-2019		Hartford			Out of Service	07/30/2019		
	Y-22488-2019	Y	Hartford			Faulty Equipment	08/20/2019		
Informational									
	Y-18958-2017		Hartford			Out of Service	05/31/2017	12/14/2018	N/A
	Y-21602-2019		Hartford			Faulty Equipment	01/25/2019		

Business Process and / or Technical Improvements

[redacted]

Alternatives Considered with Cost Estimates

Repair failing equipment: [redacted]

Keep 23kV voltage regulation with only one (1) transformer with LTC control: [redacted]

Replace/upgrade existing LTC controllers: This was the selected option to keep Eversource services at the standard reliability levels.

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Engineering	November 2019
Material Procurement	January 2020
Construction Start	February 2020
EPAC/project approval for full funding	March 2020
Testing	June 2020
In Service	June 2020

Regulatory Approvals

None

Risks and Risk Mitigation Plans

[redacted]

Battery load Impact:

[redacted]

References

None

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

- Cost Estimate Backup Details
- 16411-91001 [redacted] Nomenclature Diagram

[1] T-2: Operating Instruction (OI) issued by the Eversource Local Control Center (LCC)

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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] LTC Controllers Upgrade					**Project ID Number: CS00373**	
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?					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	
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						

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Project Name: [redacted] LTC Controllers Upgrade	Project ID Number: CS00373
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 Eversource Engineering
Who prepared the estimate?	[redacted]
Was the estimate reviewed by Eversource Estimating?	Yes - Partial Review

Cost Estimate Backup Details

Eversource Energy Estimate Overview and Cover Sheet

Project Title: [redacted] - LTC Controllers Upgrade

Prepared By: [redacted]

Project Mgr/Lead: TBD

Date of Est.: 02-21-2020

TAF / Project #: TBD

ISD: 05/31/2020

Estimate Number: TBD

Est. Type: Planning Range -25% +25% (TAF)

Scope of Work

[redacted]

Major Material:

Three (3) Beckwith M-2001D LTC Controls
Three (3) parallel balancing modules
Three (3) Panels
Three(3) AC Circulating Current Relays

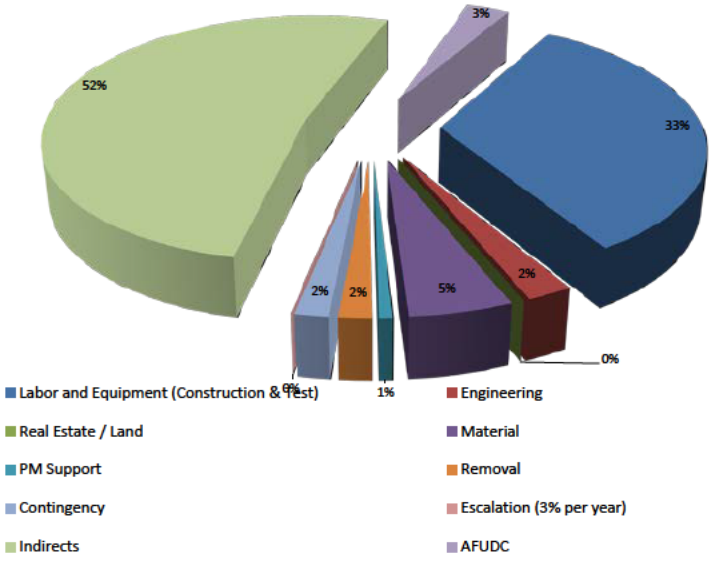
Notes: DME does not include construction rep mandays
The DME includes LCE mandays
Construction mandays are not included in this DME
The DME includes $5,165.57 in actuals for prior year of which $2,405.70 is engineering labor

Assumptions:

Engineering completed in house
Construction to be done in house
Material estimates based on previous work and vendor quotes
Labor estimates based on previous work and field input
All new equipment will be installed within the confines of the existing fenced yard.

2.1. Project Cost Summary

Labor and Equipment (Construction & Test)	$	178,483
Engineering	$	12,754
Real Estate / Land	$	-
Material	$	28,385
PM Support	$	3,737
Removal	$	9,096
Contingency	$	9,208
Escalation (3% per year)	$	-
Indirects	$	280,457
AFUDC	$	16,820
Total Project Cost	**$**	**538,940**



Project Title: [redacted] - LTC Controllers Upgra TAF / Project #: TBD	Prior Yrs $	2020 Mdays	N/A $	2021 MDays	1 $	2022 MDays	2 $	2023 MDays	3 $	2024 MDays	4 $	TOTAL MDays	N/A $	% 	Escalation 3.0%
ENRXX-TG ENG / DESIGN															Avg ENG Rate
Substation Engineering	$3,874	[redacted]	$1,850	0	$0	0	$0	0	$0	0	$0	[redacted]	$5,724		370
Substation Design	$0	[redacted]	$2,960	0	$0	0	$0	0	$0	0	$0	[redacted]	$2,960		
Substation Drafting	$0	[redacted]	$2,220	0	$0	0	$0	0	$0	0	$0	[redacted]	$2,220		
Protection & Control Engineering	$0	[redacted]	$1,850	0	$0	0	$0	0	$0	0	$0	[redacted]	$1,850		
Transmission Line & Civil Engineering	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
Underground Transmission Line Engineering	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
Survey Engineering	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
Telecom Engineering	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
SS Technical Engineer	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
Apparatus Specialist	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
Escalation					$0		$0		$0		$0		$0		
LT Subtotal	$3,874	[redacted]	$8,880	0	$0	0	$0	0	$0	0	$0	[redacted]	$12,754	$12,754	=If Crossfoot Verification
Distribution Contractor Engineering	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		370
Eng Contractor = W19 x Material & Construction Cost	$0		$0		$0		$0		$0		$0		$0	0.0%	
Contingency			$0		$0		$0		$0		$0		$0	0.0%	
Escalation					$0		$0		$0		$0		$0		
ENRXX TOTAL	$3,874		$8,880		$0		$0		$0		$0		$12,754	$12,754	=If Crossfoot Verification
PSMXX-PROJECT MGR & SUPPORT															
Project Management/Engineer (PM)	$0	[redacted]	$3,700	0	$0	0	$0	0	$0	0	$0	[redacted]	$3,700		
Project Planning/Cost (IP)	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
Contracts/Purchasing (C/P)	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
System Planning	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
Environmental	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
Siting / Permits	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
Legal	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
Estimating	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
Escalation					$0		$0		$0		$0		$0		
LT Subtotal	$0	[redacted]	3,700	0	$0	0	$0	0	$0	0	$0	[redacted]	$3,700	$3,700	=If Crossfoot Verification
Employee Expenses	$0		$37		$0		$0		$0		$0		$37	1%	
Contractors - Includes Sales Tax & Esc.	$0		$0		$0		$0		$0		$0		$0		
Environmental (Identifiable Tax Credit)	$0		$0		$0		$0		$0		$0		$0		
Legal - Contractors - Includes Sales Tax	$0		$0		$0		$0		$0		$0		$0		
Property Tax (Large Projects & Town Expectations)	$0		$0		$0		$0		$0		$0		$0		
Fees & Payments	$0		$0		$0		$0		$0		$0		$0		
Contingency			$0		$0		$0		$0		$0		$0	0.0%	
Escalation					$0		$0		$0		$0		$0		
PSMXX-PROJECT MGR & SUPPORT TOTAL	$0		$3,737		$0		$0		$0		$0		$3,737	$3,737	=If Crossfoot Verification
CSTXX-CONSTRUCTION - Additions %														100.0%	In House MDay Rate
Civil (Internal)	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$466
Electrical (Internal)	$0	[redacted]	$89,112	0	$0	0	$0	0	$0	0	$0	[redacted]	$89,112		$474
Test (Internal)	$0	[redacted]	$28,440	0	$0	0	$0	0	$0	0	$0	[redacted]	$28,440		$474
Other - Switch / Tag Support (Internal)	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$474
Construction Reps (internal)	$0		$0		$0	0	$0	0	$0	0	$0	0	$0		$370
Escalation					$0		$0		$0		$0		$0		
LT Subtotal	$0	[redacted]	$117,552	0	$0	0	$0	0	$0	0	$0	248	$117,552	$117,552	=If Crossfoot Verification
Employee Expenses	$0		$1,176		$0		$0		$0		$0		$1,176	1%	Contractor MDay Rate
Contractor Civil	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	3.9%	$880
Contractor Electrical	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	3.9%	$1,120
Contractor Test	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	3.9%	$1,200
Contractor Other		[redacted]	$48,000	0	$0	0	$0	0	$0	0	$0	[redacted]	$48,000	3.9%	$1,200
Contractor Construction Reps	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0	3.9%	$1,120
Misc. Costs (rigging, oil handling, mob / demob, material testing, soil mgt, etc.)	$0		$0		$0		$0		$0		$0		$0	3.9%	
Contractor Equipment = % of Total Construction Labor	$0		$11,755		$0		$0		$0		$0	0	$11,755	10.0%	
Lead Commissioning Engineer	$0		$0		$0		$0		$0		$0		$0		
Fees & Payments	$0		$0		$0		$0		$0		$0		$0		
Rents & Leases	$0		$0		$0		$0		$0		$0		$0		
Contingency			$8,924		$0		$0		$0		$0		$8,924	5.0%	
Escalation					$0		$0		$0		$0		$0		
CSTXX TOTAL	$0		$187,407		$0		$0		$0		$0		$187,407	$187,407	=If Crossfoot Verification
REMXX-TG REMOVAL - %														10.0%	In House MDay Rate
Civil	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$466
Electrical	$0	[redacted]	$9,006	0	$0	0	$0	0	$0	0	$0	[redacted]	$9,006		$474
Escalation					$0		$0		$0		$0		$0		
LT Subtotal	$0	[redacted]	$9,006	0	$0	0	$0	0	$0	0	$0	[redacted]	$9,006	$9,006	=If Crossfoot Verification
Employee Expenses	$0		$90		$0		$0		$0		$0		$90	1%	Contractor MDay Rate
Contractor Civil	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	3.9%	$880
Contractor Electrical	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	3.9%	$1,120
Contractors - Include Sales Tax	$0		$0		$0		$0		$0		$0		$0		
Contingency			$0		$0		$0		$0		$0		$0	0.0%	
Escalation					$0		$0		$0		$0		$0		
REMXX TOTAL	$0		$9,096		$0		$0		$0		$0		$9,096	$9,096	=If Crossfoot Verification
MATXX-TG MATERIAL (Includes Tax)															
Misc Purchases (Credit Card Etc.)	$0		$1,785		$0		$0		$0		$0		$1,785	1%	1% Construction Labor
Stock	$0		$26,600		$0		$0		$0		$0		$26,600		
Direct	$0		$0		$0		$0		$0		$0		$0		
Contingency Excluding Big Ticket Items			$284		$0		$0		$0		$0		$284	1.0%	
Escalation					$0		$0		$0		$0		$0		
MATXX TOTAL	$0		$28,669		$0		$0		$0		$0		$28,669	$28,669	=If Crossfoot Verification
Contingency Excludes Large Items	$0		$0		$0		$0		$0		$0		$0		Note Only - Large Items
LNDXX-TG LAND															ENG Blended Rate
Real Estate	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		$370
Escalation					$0		$0		$0		$0		$0		
LT Subtotal	$0		$0		$0		$0		$0		$0		$0		=If Crossfoot Verification
Purchase Land	$0		$0				$0		$0		$0		$0		
Fees & Payments	$0		$0		$0		$0		$0		$0		$0		
Contingency			$0		$0		$0		$0		$0		$0	0.0%	
Escalation					$0		$0		$0		$0		$0		
LNDXX TOTAL	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$0	=If Crossfoot Verification
DIRECT COST TOTAL	$3,874		$237,789		$0		$0		$0		$0		$241,663		
INDIRECTS															
Non-Productive Allocation (ZB-TM1-ZNP)	$1,292		$20,940		$0		$0		$0		$0		$22,232	15.05%	
Payroll Benefits Allocation (ZE-TM1-Z93)	$0		$68,081		$0		$0		$0		$0		$68,081	42.53%	
Material Stores Allocation (Stock) <25k (ZC-TM1-Z91)	$0		$2,129		$0		$0		$0		$0		$2,129	7.50%	Excludes Big Ticket Tabs
Gen Service Co. OH Allocation (ZF-TM1-Z94)	$0		$0		$0		$0		$0		$0		$0	0.00%	
E&S Allocation (25%<20M<3%) - (ZI-TM1-Z96)	$0		$143,957		$0		$0		$0		$0		$143,957	50.00%	
Misc. Dist. Exp. Cap. Allocation (ZH-TM1-Z92)	$0		$0		$0		$0		$0		$0		$0	0.00%	
AS&E Allocations (ZJ-TM1-Z90)	$0		$5,099		$0		$0		$0		$0		$5,099	1.55%	
Vehicle Allocations (ZV-TM1-Z98)	$0		$38,959		$0		$0		$0		$0		$38,959	28.00%	
INDIRECT Subtotal	$1,292		$279,165		$0		$0		$0		$0		$280,457	280,457	=If Crossfoot Verification
AFUDC (ZK - TM1-Z95)	$0		$16,820		$0		$0		$0		$0		$16,820	6.38%	Annual Rate
PROJECT COST TOTAL	$5,166		$533,774		$0		$0		$0		$0		$538,940	$538,940	=If Crossfoot Verification

Calc OH's	Prior Years	2020	Subtotal	2021	Subtotal	2022	Subtotal	2023	Subtotal	2024	Subtotal	TOTAL	Subtotal		
Filter Label to Create Formulas - Should = Total	Costs	M-Days	Costs	M-Days	Costs	M-Days	Costs	M-Days	Costs	M-Days	Costs	M-Days	Costs		
Engineering	$3,874	[redacted]	$8,880	0	$0	0	$0	0	$0	0	$0	24	$12,754		
Civil	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0		
Electrical	$0		$98,118	0	$0	0	$0	0	$0	0	$0	207	$98,118		
Test	$0		$28,440	0	$0	0	$0	0	$0	0	$0	60	$28,440		
Other Support/Switch/Constr Rep/RE	$0		$3,700	0	$0	0	$0	0	$0	0	$0	10	$3,700		
LT Sub - Total	$3,874		139,138	0	0	0	0	0	0	0	0	301	$143,012		$143,012
Employee Expenses	$0		$1,303		$0		$0		$0		$0		$1,303		
Materials	$0		$28,385		$0		$0		$0		$0		$28,385		
Contractors	$0		$59,755		$0		$0		$0		$0		$59,755		
Environmental	$0		$0		$0		$0		$0		$0		$0		
Fees & Payments	$0		$0		$0		$0		$0		$0		$0		
Rents & Leases	$0		$0		$0		$0		$0		$0		$0		
Contingency	$0		$9,208		$0		$0		$0		$0		$9,208		
Escalation	$0		$0		$0		$0		$0		$0		$0		
Contingency & Escalation Subtotal	$0		$9,208		$0		$0		$0		$0		$9,208		
DIRECT TOTAL	$3,874		$237,789		$0		$0		$0		$0		$241,663		
Overhead Subtotal	$1,292		$295,985		$0		$0		$0		$0		$297,277		
PROJECT COST TOTAL	$5,166		$533,774		$0		$0		$0		$0		$538,940		$538,940

Summary by Activity															
Labor & Equipment (Construction & Test)	$0		$178,483		$0		$0		$0		$0		$178,483		
Engineering	$3,874		$8,880		$0		$0		$0		$0		$12,754		
Real Estate / Land	$0		$0		$0		$0		$0		$0		$0		
Material	$0		$28,385		$0		$0		$0		$0		$28,385		
Project Management Support / Permitting	$0		$3,737		$0		$0		$0		$0		$3,737		
Removals	$0		$9,096		$0		$0		$0		$0		$9,096		
Contingency	$0		$9,208		$0		$0		$0		$0		$9,208		
Escalation	$0		$0		$0		$0		$0		$0		$0		
Indirects	$1,292		$279,165		$0		$0		$0		$0		$280,457		
AFUDC	$0		$16,820		$0		$0		$0		$0		$16,820		
PROJECT COST TOTAL	$5,166		$533,774		$0		$0		$0		$0		$538,940		$538,940

