Operations Project Authorization Form

Approved at March 06, 2019 EPAC
Link to Meeting Minutes

Date Prepared: 03/01/2019	**Project Title: Replacement of** [redacted]
Company/ies: Eversource CT	**Project ID Number: CS00337**
Organization: Asset Management	**Class(es) of Plant: Distribution Substation**
Project Initiator: [redacted]	**Project Category: Stations – Transformers**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Project Purpose: Replacement of failed equipment**
Estimated in service date: 4/19/2019	**If Transmission Project, PTF/Non-PTF: N/A**
Eng. / Constr. Resources Budgeted? Yes	**Capital Investment Part of Original Operating Plan: Y**
Authorization Type: Full Funding	**O&M Expenses Part of the Original Operating Plan: N**
Total Request: $2,931,000	

Financial Requirements:

Project Authorization

ERM: _____

FP&A: _____

Executive Summary

This project is seeking full funding of $2,931K to [redacted] On February 27, 2019 the 28-year-old Magnetek [redacted] to be ordered for project CS00247.

Project Costs Summary
Note: Dollar values are in thousands

	Prior Authorized	2019	2020	Totals
Capital Additions - Direct	$0	$1,936	$0	$1,936
Less Customer Contribution	$0	$0	$0	$0
Removals net of Salvage 1%	$0	18	$0	$18
Total - Direct Spending	$0	$1,954	$0	$1,954
Capital Additions - Indirect	$0	$882	$0	$882
Subtotal Request	$0	$2,836	$0	$2,836
AFUDC	$0	$95	$0	$95
Total Capital Request	$0	$2,931	$0	$2931
O&M	$0	$0	$0	$0
Total Request	$0	$2,931	$0	$2,931

Financial Evaluation
Note: Dollar values are in thousands

Direct Capital Costs	2019	2020	Totals
Straight Time Labor	$371	$0	$371
Overtime Labor	$0	$0	$0
Outside Services	$443	$0	$443
Materials	$1,140	$0	$1,140
Other, including contingency amounts (describe)	$0	$0	$0
Total Direct Costs	**$1,954**	**$0**	**$1,954**
Indirect Capital Costs	**2019**	**2020**	**Totals**
Indirects/Overheads (including benefits)	$882	$0	$882
Capitalized interest or AFUDC, if any	$95	$0	$95
Total Indirect Costs	$977	$0	$977
Total Capital Costs	**$2,931**	**$0**	**$2,931**
Less Total Customer Contribution	$0	$0	$0
Total Capital Project Costs	**$2,931**	**$0**	**$2,931**
Total O&M Project Costs	$0	$0	$0

Note: Explain unique payment provisions, if applicable: N/A

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__	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? None

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:
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: None

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

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

Are there other environmental cleanup costs associated with this project? No If yes, please provide details:

Technical Justification:

Project Need Statement

On February 27, 2019 the [redacted] as the replacement to meet the requested in-service date.

Project Objectives

The immediate objective (spring 2019) for this project is:

[redacted]

Project Scope

[redacted]

[redacted]

Background / Justification

On February 27, 2019 the 28-year-old [redacted]

[redacted]

[redacted]

Follow up testing confirmed that the [redacted]

Business Process and / or Technical Improvements:

[redacted]

Alternatives Considered with Cost Estimates

No alternatives were considered due to this replacement being an emergent project.

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Engineering to issue drawings	03/15/2019
Civil/Electrical Construction to start	03/15/2019
ISD of the [redacted]	04/19/2019

Regulatory Approvals

This project will require a siting council Exempt Modification.

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Internal engineering resources not available to perform the work.	2019	Low	Engineering will provide the resources.
Materials Shortage or long lead times	2019	Low	The major material being the transformer will be pulled from the Stepstone project and a new transformer to be purchased to replace that one.

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
System abnormal configuration	2019	Medium	Currently all customers are on the surviving 2A-1X transformer. There are plans to install a mobile transformer.
SCLL Conditions	2019	Medium	SCLL conditions exists. Any required field ties will be put in place for the duration of construction. A mobile is in the process of being installed.
Existing foundation not suitable for new larger transformer	2019	Low	This is a relatively newer foundation. A field check is in progress to evaluate whether the existing transformer foundation has shifted since put in place. If still level, civil is comfortable with using existing foundation to save time. If not, dollars have been included to cover removal and installation of new transformer foundation
DSCADA Upgrades	2019	Medium/Low	The dollar amount to perform the upgrades was estimated at approx. $10k. Engineering will need to confirm existing equipment at substation.
Transformer Sound Study	2019	Low	The new transformer has a lower sound level value then the existing. A sound level reading will be taken once the transformer has been installed and in service.

References

N/A

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

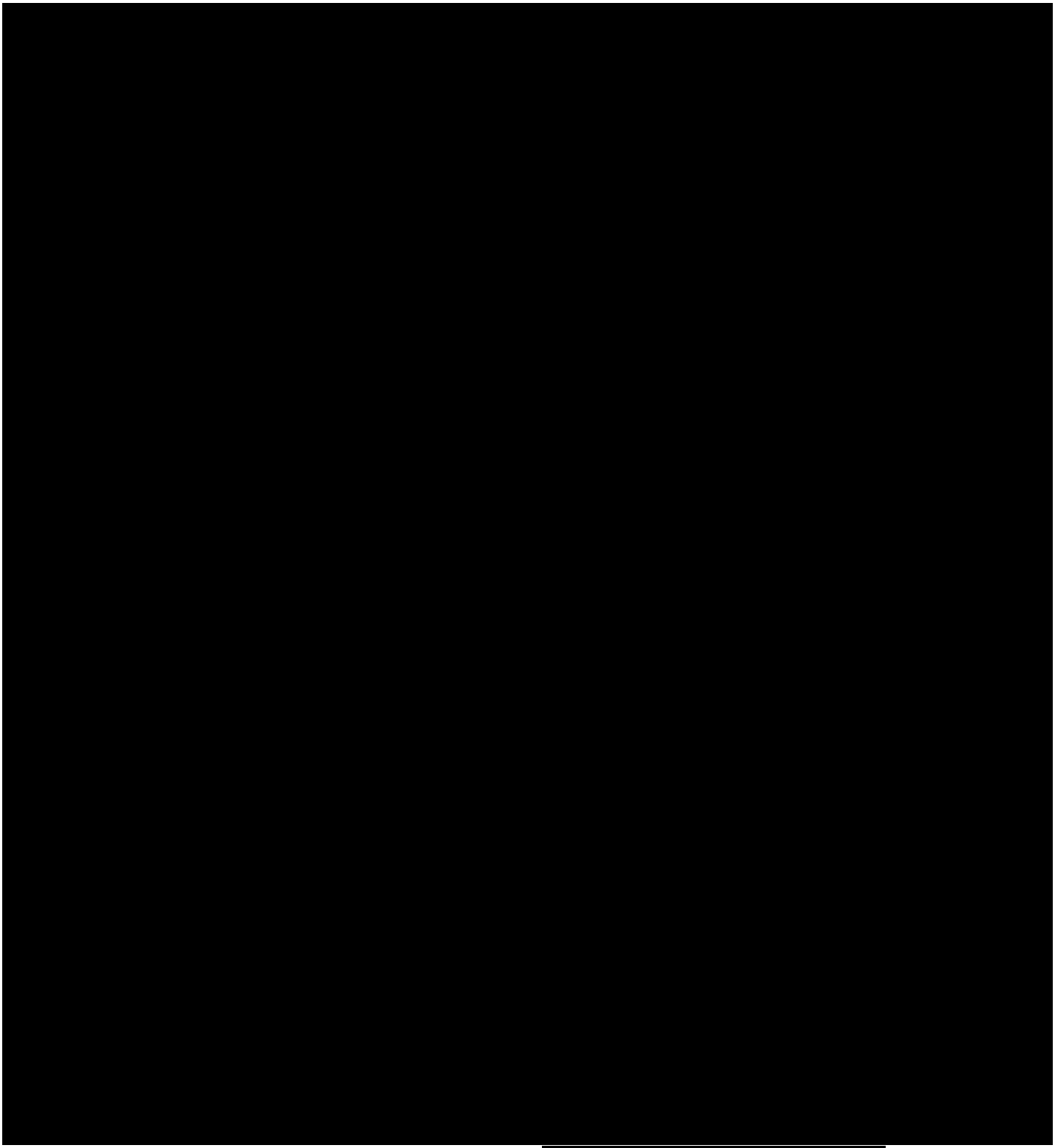

Figure 1 - Nomenclature diagram of [redacted]



Gas Analysis



Figure 2 –

[redacted]

Gas Analysis

[redacted]

Figure 3 – Oil sample results of [redacted]

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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]					**Project ID Number: CS00337**	
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?					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					Yes	
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	

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Checklist for Studies and Processes of a Transmission & Substation Capital Project	
Project Name: [redacted]	**Project ID Number: CS00337**
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?	Yes
PERMITTING	
Is there any permitting required?	Yes
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?	Other (specify below)
Who prepared the estimate?	Engineering – [redacted]
Was the estimate reviewed by Eversource Estimating?	Yes

Cost Backup Details

Project Title: [redacted] - Replace Failed 3X Transfo	Prior Yrs	2018	N/A	2019	1	2020	2	2021	3	2022	4	TOTAL	N/A		Escalation
TAF / Project #: TBD	$	Mdays	$	MDays	$	MDays	$	MDays	$	MDays	$	MDays	$	%	3.0%
ENRXX-TG ENG / DESIGN															Avg ENG Rate
Project Services & Drafting	$0	0	$0	[redacted]	$7,400	0	$0	0	$0	0	$0	[redacted]	$7,400		370
Trans Eng & Design	$0	0	$0		$0	0	$0	0	$0	0	$0		$0		
Civil Engineering	$0	0	$0		$1,850	0	$0	0	$0	0	$0		$1,850		
Civil Design	$0	0	$0		$1,850	0	$0	0	$0	0	$0		$1,850		
Elect Eng & Design	$0	0	$0		$7,400	0	$0	0	$0	0	$0		$7,400		
Dist. SS Eng & Design	$0	0	$0		$1,850	0	$0	0	$0	0	$0		$1,850		
Protection & Control	$0	0	$0		$7,400	0	$0	0	$0	0	$0		$7,400		
Surveying	$0	0	$0		$0	0	$0	0	$0	0	$0		$0		
Permitting	$0	0	$0		$0	0	$0	0	$0	0	$0		$0		
Telecom	$0	0	$0		$1,850	0	$0	0	$0	0	$0		$1,850		
SS Technical Engineer	$0		$0		$1,850	0	$0	0	$0	0	$0		$1,850		
Apparatus Speciallist	$0	0	$0		$1,850	0	$0	0	$0	0	$0		$1,850		
Escalation					$999		$0		$0		$0		$999		
LT Subtotal	$0	0	$0	[redacted]	$34,299	0	$0	0	$0	0	$0	[redacted]	$34,299	$34,299	=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	$0		$0		$34,299		$0		$0		$0		$34,299	$34,299	=If Crossfoot Verification
PSMXX-PROJECT MGR & SUPPORT															
Project Planning	$0	0	$0	[redacted]	$740	0	$0	0	$0	0	$0	[redacted]	$740		
Project Management/Engineer	$0	0	$0	[redacted]	$3,700	0	$0	0	$0	0	$0	[redacted]	$3,700		
Legal	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0		
Escalation					$133		$0		$0		$0		$133		
LT Subtotal	$0	0	0	[redacted]	$4,573	0	$0	0	$0	0	$0	[redacted]	$4,573	$4,573	=If Crossfoot Verification
Employee Expenses	$0		$0		$46		$0		$0		$0		$46	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					$1		$0		$0		$0		$1		
PSMXX-PROJECT MGR & SUPPORT TOTAL	$0		$0		$4,620		$0		$0		$0		$4,620	$4,620	=If Crossfoot Verification
CSTXX-CONSTRUCTION - Additions %														100.0%	In House MDay Rate
Civil	$0	0	$0	[redacted]	$48,464	0	$0	0	$0	0	$0	[redacted]	$48,464		$466
Electrical	$0	0	$0	[redacted]	$174,906	0	$0	0	$0	0	$0	[redacted]	$174,906		$474
Test	$0	0	$0	[redacted]	$71,100	0	$0	0	$0	0	$0	[redacted]	$71,100		$474
Other - Switch / Tag Support	$0	0	$0	[redacted]	$23,700	0	$0	0	$0	0	$0	[redacted]	$23,700		$474
Construct. Reps (included as "Contractor Other")	$0		$0	0	$0	0	$0	0	$0	0	$0	0	$0		$370
Escalation					$9,545		$0		$0		$0		$9,545		
LT Subtotal	$0	0	$0	[redacted]	$327,715	0	$0	0	$0	0	$0	[redacted]	$327,715	$327,715	=If Crossfoot Verification
Employee Expenses	$0		$0		$3,277		$0		$0		$0		$3,277	1%	Contractor MDay Rate
Contractor Civil	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	3.9%	$880
Contractor Electrical - vacudyne oil filling	$0	0	$0	[redacted]	$116,480	0	$0	0	$0	0	$0	[redacted]	$116,480	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 - LCE & CR, rigging contractor	$0	0	$0	[redacted]	$106,400	0	$0	0	$0	0	$0	[redacted]	$106,400	3.9%	$1,120
Contractor Equipment = % of Total Construction Labor	$0		$0		$82,190		$0		$0		$0	0	$82,190	20.0%	
Additional Test & Commissioning Labor Inc sales tax	$0		$0		$0		$0		$0		$0		$0		
Fees & Payments	$0		$0		$0		$0		$0		$0		$0		
Rents & Leases, Transformer move & Rigging	$0		$0		$75,000		$0		$0		$0		$75,000		
Contingency			$0		$0		$0		$0		$0		$0	0.0%	
Escalation					$11,500		$0		$0		$0		$11,500		
CSTXX TOTAL	$0		$0		$722,562		$0		$0		$0		$722,562	$722,562	=If Crossfoot Verification
REMXX-TG REMOVAL - %														5.0%	In House MDay Rate
Civil	$0	0	$0	[redacted]	$2,423	0	$0	0	$0	0	$0	[redacted]	$2,423		$466
Electrical	$0	0	$0	[redacted]	$8,745	0	$0	0	$0	0	$0	[redacted]	$8,745		$474
Escalation					$335		$0		$0		$0		$335		
LT Subtotal	$0	0	$0	[redacted]	$11,503	0	$0	0	$0	0	$0	[redacted]	$11,503	$11,503	=If Crossfoot Verification
Employee Expenses	$0		$0		$115		$0		$0		$0		$115	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	$224	[redacted]	$5,600	0	$0	0	$0	0	$0	[redacted]	$5,824	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					$171		$0		$0		$0		$171		
REMXX TOTAL	$0		$224		$17,389		$0		$0		$0		$17,613	$17,613	=If Crossfoot Verification
MATXX-TG MATERIAL (Includes Tax)															
Misc Purchases (Credit Card Etc.)	$0		$0		$6,361		$0		$0		$0		$6,361	1%	1% Constuction Labor
Stock	$0		$0		$15,559		$0	$0	$0		$0		$15,559		
Direct	$0		$0		$1,118,472		$0		$0		$0		$1,118,472		
Contingency Excluding Big Ticket Items			$0		$0		$0		$0		$0		$0	0.0%	
Escalation					$34,212		$0		$0		$0		$34,212		
MATXX TOTAL	$0		$0		$1,174,604		$0		$0		$0		$1,174,604	$1,174,604	=If Crossfoot Verification
Contingency Excludes Large Items	$0		$0		$1,106,000		$0		$0		$0		$1,106,000		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		$0		
Fees & Payments	$0		$0		$0		$0		$0		$0		$0		
Contingency			$0		$0		$0		$0		$0		$0	1.0%	
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	$0		$224		$1,953,474		$0		$0		$0		$1,953,698		
INDIRECTS															
Non-Productive Allocation (ZB-TM1-ZNP)	$0		$0		$45,885		$0		$0		$0		$45,885	12.5%	
Payroll Benefits Allocation (ZE-TM1-Z93)	$0		$0		$148,079		$0		$0		$0		$148,079	40.3%	
Material Stores Allocation (Stock) <25k (ZC-TM1-Z91)	$0		$0		$12,037		$0		$0		$0		$12,037	35.0%	Excludes Big Ticket Tabs
Gen Service Co. OH Allocation (ZF-TM1-Z94)	$0		$0		$0		$0		$0		$0		$0	0.0%	
E&S Allocation (25%<20M<3%) - (ZI-TM1-Z96)	$0		$134		$523,027		$0		$0		$0		$523,161	60.0%	
Misc. Dist. Exp. Cap. Allocation (ZH-TM1-Z92)	$0		$11		$43,586		$0		$0		$0		$43,597	5.0%	
AS&E Allocations (ZJ-TM1-Z90)	$0		$1		$13,413		$0		$0		$0		$13,414	0.5%	
Vehicle Allocations (ZV-TM1-Z98)	$0		$0		$96,285		$0		$0		$0		$96,285	26.2%	
INDIRECT Subtotal	$0		$146		$882,312		$0		$0		$0		$882,458	$882,458	=If Crossfoot Verification
AFUDC (ZK - TM1-Z95)	$0		$12		$95,166		$0		$0		$0		$95,178	6.71000%	Annual Rate
PROJECT COST TOTAL	$0		$382		$2,930,952		$0		$0		$0		$2,931,334		=If Crossfoot Verification
															$2,931,334

Calc OH's	Prior Years	2018	Subtotal	2019	Subtotal	2020	Subtotal	2021	Subtotal	2022	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	$0	0	$0	[redacted]	$33,300	0	$0	0	$0	0	$0	[redacted]	$33,300	
Civil	$0	0	$0		$50,887	0	$0	0	$0	0	$0		$50,887	
Electrical	$0	0	$0		$183,651	0	$0	0	$0	0	$0		$183,651	
Test	$0	0	$0		$71,100	0	$0	0	$0	0	$0		$71,100	
Other Support/Switc/Constr Rep/RE	$0	0	$0		$28,140	0	$0	0	$0	0	$0		$28,140	
LT Sub - Total	$0	0	0		367,078	0	0	0	0	0	0		$367,078	$367,078
Employee Expenses	$0		$0		$3,438		$0		$0		$0		$3,438	
Materials	$0		$0		$1,140,392		$0		$0		$0		$1,140,392	
Contractors	$0		$224		$310,670		$0		$0		$0		$310,894	
Envirionmental	$0		$0		$0		$0		$0		$0		$0	
Fees & Payments	$0		$0		$0		$0		$0		$0		$0	
Rents & Leases	$0		$0		$75,000		$0		$0		$0		$75,000	
Contingency	$0		$0		$0		$0		$0		$0		$0	
Escalation	$0		$0		$56,896		$0		$0		$0		$56,896	
Contingency & Escalation Subtotal	$0		$0		$56,896		$0		$0		$0		$56,896	
DIRECT TOTAL	$0		$224		$1,953,474		$0		$0		$0		$1,953,698	
Overhead Subtotal	$0		$158		$977,478		$0		$0		$0		$977,636	
PROJECT COST TOTAL	$0		$382		$2,930,952		$0		$0		$0		$2,931,334	$2,931,334

Summary by Activity														
Material	$0		$0		$1,140,392		$0		$0		$0		$1,140,392	
Labor & Equipment (Const,RMV,Test)	$0		$224		$718,400		$0		$0		$0		$718,624	
Engineering/Permitting/PM/Land/Ind	$0		$146		$920,098		$0		$0		$0		$920,244	
Escalation	$0		$0		$56,896		$0		$0		$0		$56,896	
AFUDC	$0		$12		$95,166		$0		$0		$0		$95,178	
Contingency	$0		$0		$0		$0		$0		$0		$0	
PROJECT COST TOTAL	$0		$382		$2,930,952		$0		$0		$0		$2,931,334	$2,931,334