Supplement Request Form

Approved at March 06, 2019 EPAC

Link to Meeting Minutes

Date Prepared: 01/23/2019	**Project Title: [redacted] – Replace 2X Transformer**
Company/Companies: Eversource CT	**Project ID Number: CS00244**
Organization: Strategy & Performance	**Plant Class / (F.P.Type): Distribution**
Project Initiator: [redacted]	**Project Category: Stations - Transformers**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Capital Investment Part of Original Operating Plan? Y**
Current Authorized Amount: $681K	**O&M Expenses Part of the Original Operating Plan? Y**
Supplement Request: $329K	**ISD – 06/11/2017**
Total Request: $1,010K	**Other: Original Authorized Budget - $681K; PowerPlan approval 09/06/2017**

Supplement Justification

The [redacted] Transformer Replacement Project had an original authorized budget of $681K which was approved in PowerPlan on September 6, 2017. This supplement requests approval of an additional $329K for an updated total request of $1,010K, which is the final project amount. All construction has been completed and all assets were placed in-service June 11, 2017. Current spend to date on the project is $997K.

The project scope was to replace [redacted] This project was transferred from the Eversource Distribution Group to the Transmission Group in March 2017 to complete the project prior to summer peak.

One of the primary drivers behind this supplement was not gaining approval for the original engineering estimate of $1,200K for outsourced labor. Several cost items were not identified at the time of the original approved budget including: preparation and assembly work associated with the transportation needs of the replacement transformer and the transformer repairs required after testing. While there were no significant scope changes, conditions encountered during the project led to additional unforeseen labor costs and repairs. Additional details are provided below.

Justification for Additional Resources

The reasons for the project authorization supplement of $329K are summarized below, by the affected cost categories:

Note: Dollar values are in thousands

Direct Cost Item	Prior Authorized	Updated Estimate	Delta
1. Project Mgr. Support	$18.5	$32.0	$13.5
2. Materials	$198.5	$181.6	($16.9)
3. Construction/Removals	$294.6	$438.4	$143.8
Subtotal Direct Costs	$557.20	$697.60	140.40
4. Indirects	$119.9	$308.1	$188.2
Total Costs	**$681**	**$1,010**	**$329**

1. **PM Support: $13.5K**
   - The original approved budget did not adequately reflect the costs for project management support throughout the project as well as for change order management and the closeout process. The additional cost for this support is $13.5K.

2. **Materials: ($16.9K)**
   - After final review of material costs, the reduction in material costs from the original estimate is due to a price decrease from the supplier. The total cost decrease was $16.9K.

3. **Construction: $144.2K**
   - The original approved budget for construction did not include the preparation and assembly work associated with supporting the transportation of [redacted] Additionally, the original budget did not include external construction support for the replacement of the transformer. Due to the unavailability of resources, the project required external construction support, resulting in added cost. [redacted], the external construction contractor, [redacted] This unforeseen work resulted in an added cost of $144.2K.

4. **Indirect Costs: $188.2K**
   - In 2018 the E & S rate increased to 90%, as a result the project increased by $188.2K.

Please find a copy of the prior authorization document attached as reference.

Supplement Cost Summary

Note: Dollar values are in thousands

	Prior Authorized	Supplement Request	Total
Capital Additions - Direct	$557	$141	$698
Less Customer Contribution	$0	$0	$0
Removals Net of Salvage ___%	$0	$0	$0
Total Direct Spending	$557	$141	$698
Capital Additions - Indirect	$120	$188	$308
AFUDC	$4	$0	$4
Total Capital Request	$681	$329	$1,010
O&M	$0	$0	$0
Total Request	$681	$329	$1,010

Note: Dollar values are in thousands:

Total Supplement Request by year view:

	Year 2018	Year 2019	Total
Capital Additions Direct	$132	$9	$141
Less Customer Contribution	$0	$0	$0
Removals Net of Salvage ___%	$0	$0	$0
Total Direct Spending	$132	$9	$141
Capital Additions - Indirect	$185	$3	$188
AFUDC	$0	$0	$0
Subtotal Request	$317	$12	$329
O&M	$0		$0
Total Request	$317	$12	$329

Technical Authorization Form

Date Prepared: November 3, 2016	Project Title: [redacted] – Replace Failing 16Q-2X
Company/ies: Eversource CT	Project ID Number: CS00244
Organization: Strategy & Performance	Class(es) of Plant: Distribution
Project Initiator: [redacted]	Project Category: Emergent Equipment Failure – S/S
Project Owner/Manager: [redacted]	Project Type: Specific
Project Sponsor: [redacted]	Project Purpose: Replace failing transformer
Estimated in service date: 4/28/17	If Transmission Project: NA
Authorization Type: Detailed Engineering	Authorization Amount: $100,000

Project Need Statement

The [redacted]

Project Objectives

[redacted]

Project Scope

[redacted]

Background / Justification

[redacted]

[redacted]

Business Process and / or Technical Improvements:

[redacted]

Cost Estimate and Assumptions

The estimated project cost is $1.246M with an in-service date of April 2017. The estimate is based on an engineering requested decision making estimate. The appropriate cost loaders and overheads are included in the estimate. Material costs include the current cost of the system spare transformer ($169k) that will be installed. The estimate scope includes modifications to control conduits, as well as anticipated environmental remediation costs.

Alternatives Considered with Cost Estimates

Several alternatives were considered.

[redacted]
choices both have inventory values of approximately $30k. The choices are:

i. [redacted] at a project cost of $1,392k. This option is not recommended because the delivery date for a new transformer would be in fall 2017. This would fall outside the project window of having [redacted] back in service by summer 2017.

c. [redacted]

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Engineering	January 2017
Begin Construction	February 2017
Complete Construction	April 2017

Regulatory Approvals

This is a one for one replacement within a distribution only station. N/A

Risks and Risk Mitigation Plans

The replacement should present few risks. It is straightforward and similar to other [redacted]

Guidelines:

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2018	Medium Impact	The scope is based on construction practices not used in the past
Internal construction resources available to perform the work.	2018	High Impact	The replacement of the transformer by ES employees will reduce the project costs ($980k)
Internal engineering resources not available to perform the work.	2017	Low Impact	This project is Planned for internal resources to perform the work
Materials Shortage or long lead times	2017	Low Impact	The transformer planned for this project is on hand.
Storm delays	2017-2018	Low Impact	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2017 -2018	Low Impact	[redacted]

One-Line Diagrams, Attachments, and Images

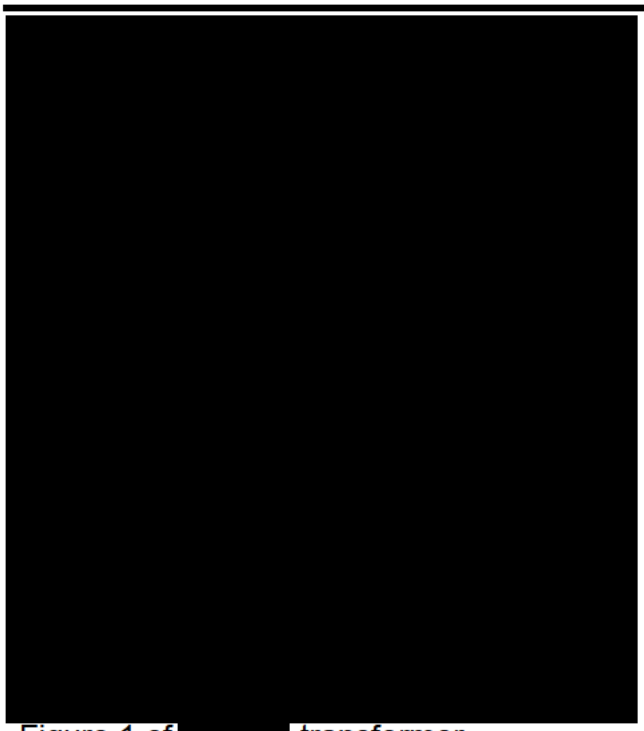


Figure 1 of [redacted] transformer

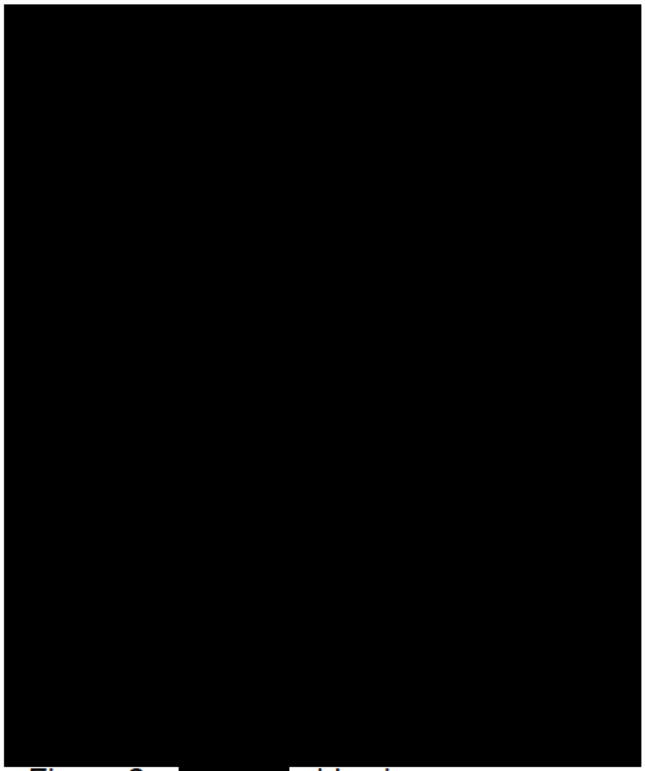


Figure 2 – [redacted] side view



Figure 3 - Load curves for the [redacted]

Attachment 1 - [redacted] Nomenclature Diagram:

[redacted].pdf

Attachment 2 - [redacted] Gas Analysis:

[redacted] Main Tank.pdf

Attachement 3 – [redacted] substation aerial

[redacted] substation Aerial.doc

[redacted]

[redacted] Based on this experience, CL&P has developed special guidelines for rating these units. These special summer normal ratings have resulted in generally good historic results for CL&P.

[redacted]