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Operations Supplement Request Form

Approved on May 23, 2024 EPAC

Link to Meeting Minutes

Project Title: [redacted] OCB Replacement and Bus Rehab Program Release	**Project Number: CS00417**
Date Prepared: 05/14/2024	**Company: Eversource CT**
Organization: Asset Management	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - Circuit Breakers**
Managing Organization: Project Mgt and Construction	**Schedule ID#: 80246557**
Project Manager: [redacted]	**Project Type: Program Release**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Project Manager's Director: [redacted]	**Estimated in service date: March 2025**
Current Authorized Amount: $3.167M	**Emergency Related Request? No**
Supplement Request: $1.275M	**Supplement Type: Supplement**
Total Capital Request: $4.442M	**ISO-NE Approval Required (check all that apply):** ☐ **PAC** ☐ **TCA**
EJ Community: No	

[1] Background

This Project is requesting supplemental funding in the amount of $1.275M for [redacted] and will increase the total authorized funding to $4.442M. The full funding Program Release of $3.167M was approved in PowerPlan on May 12, 2022. The project was a release under the CT OCB Replacement and Bus Rehabilitation Program Level PAF (Project# CS00411). The scope of the project includes replacement of two (2) 23kV oil circuit breakers (OCBs) with new vacuum breakers, replacement of two (2) station service transformers (SSTs), and installation of two (2) group operated disconnect switches (GODs). Eversource Substation Engineering developed the estimates for the project in March 2022, their estimated total cost for the project was $3.167M with an anticipated in-service date (ISD) of December 2022.

At this time, the project is still in construction with an ISD of March 2025. The scope completed so far includes [redacted] The project has incurred approx. $3.291M total charges to date.

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[2] Supplement Justification Overview

Although some of the below scope items were in the original scope, the amount of work involved to achieve the ISD was underestimated and underbudgeted.

The primary drivers of this supplement request are:

- Increased labor costs associated with Engineering having to work on issuing temporary drawings to replace a failed tie-breaker while still working on the overall Detailed design for the project. The tie-breaker is part of the original scope of the project.
- Increased Engineering cost ($135K) due to under estimation of the engineering effort (labor time & cost) needed to complete the engineering designs of the original scope of the project, approved in the PAF. Other factors that led to the increase in Engineering cost:
    - Labor costs associated with Engineering having to perform multiple walkdowns due to unavailability of underground (UG) field and construction crews.
- Increased Material cost ($405K) due to under estimation of the quantities of materials needed to complete the project according to the original scope.
- Increase Construction cost ($262K) due to under estimation of construction works (time & materials) needed to fully execute the construction of the project according to the original scope.
- Increase AFUDC cost ($229K) due to extension of project duration.
- Expended ($93K) on environmental related activities; a cost not included in the project cost estimates in the PAF. The environmental related activities include the testing, loading, and hauling of soil, rocks, and foundation concrete materials excavated during construction (impacted and nonimpacted materials) to disposal facilities.
- Construction cost ($92K) for the Installation of cable from station service cabinets to the control house. Internal construction does not possess the necessary equipment to pull the size of cable Engineering purchased for the project. A construction vendor with the right equipment would be hired to install the cable.

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[3] Supplement Justification Detail

The reasons for the project authorization supplement of $1.275M are summarized below.

1. **ROW / Easements / Land Acquisition: $0.2K** - Cost associated with survey activities to determine grade of support for equipment, additions to scope. The cost for ROW / Easements / Land Acquisition was not included in the full funding Program Release.

2. **Environmental Approvals / Permits: $93K** - Cost for conducting test on soil, rock and concrete, excavated during construction of conduit pipe and OCB foundations. Cost of loading, transportation and disposing impacted and nonimpacted materials at different waste facilities, respectively. The cost for Environmental Approvals / Permits was not included in the full funding Program Release.

   The environmental engineering contractor was engaged to conduct test to determine whether excavated soil is reusable, as well as conduct test on excavated concrete foundation suspected of containing asbestos material. The environmental engineering contractor determined Eversource compaction requirements cannot be met using the soil excavated from the conduit trench. They also found that the excavated concrete foundation and soil material around the foundation are polluted with asbestos. In total approximately 1000 tons of soil, rocks, and concrete materials were hauled away from the site.

3. **Engineering / Design: $135K** – Estimates submitted with the PAF to EPAC for approval do not capture the full extent of engineering effort needed to complete the original scope as stated in the PAF (cost underestimation). Other reason leading to the increase in cost include
   a. During the Detail Engineering design phase a tie-breaker [redacted] failed and required Engineering to work on issuing temporary drawings to replace the failed tie-breaker while still working on the overall Detailed design for the project.
   b. Engineering had to undertake multiple Engineering Walkdowns due to unavailability of UG field and construction crews contributed to the cost exceeding its original budget.

4. **Materials (Eversource purchased): $405K** - Not all the materials or quantities required to complete the original scope as stated in the PAF was captured in the material cost estimates submitted with the PAF to EPAC for approval.
   a. The estimated cable length was 200LF ($24K) versus cable length of 5,000LF ($258K) later required for the project. The estimated length of underground conduit was 300LF versus underground conduit length of 1,972LF later required for the project.
   b. The estimates did not capture cost of Disconnect Switches, Safety Switches, and steel supports. Also, cost of variety of other small materials were not captured, including insulators, fuse, grounding hub, lugs, plugs, ducts etc.

5. **Construction (incl materials by contractors): $262K** - Increased construction cost is due to under estimation of the construction work required to complete the original scope as stated in the PAF (cost underestimation). The original estimates had $897K (5,377 hours) for construction versus total construction execution cost $1,159K. The execution cost includes:

a. Execution of electrical construction by internal construction cost $481K.
b. Execution of civil construction works cost $586K. The main scope of the civil construction works include (1) excavation and installation of conduit pipes, and (2) excavation and installation of new concrete foundation for equipment.
c. Installation of cable from station service cabinets to the control house by a vendor has a projected cost of $92K. Internal construction does not possess the necessary equipment to pull the size of cable Engineering purchased for the project. A vendor with the right equipment will be hired to perform the task.

6. **Project Management Team: $36K** - Increase in project management team cost associated with effort required to manage additions to work scope and for managing the project past the original in service date.

7. **Other: $115K** - Cost associated with equipment rentals (storage containers, trailers, and convex boxes etc.), as electrical construction was performed internally.

8. **AFUDC: $229K** - AFUDC actuals are expected to be greater than initially estimated due to additions to work scope, and project being put on hold till 2025, thereby extending the ISD.

Total Supplement Request: $1,275K

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

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[4] Supplement Cost Summary

The table below summarizes the line item categories from the original project estimates and the updated project estimates.

Note: Dollar values are in thousands and rounded to nearest thousand:

Line item Category	Prior Authorized	New Total Request	Variance (Supplemental Request)
1. ROW / Easements / Land Acquisition	$	$0.2	$0.2
2. Environmental Approvals / Permits	$	$93	$93
3. Outreach	$3	$3	$
4. Siting Approvals / Permits	$	$	$
5. Engineering / Design	$128	$263	$135
6. Materials (Eversource purchased)	$207	$612	$405
7. Construction (incl materials by contractors)	$897	$1,159	$262
8. Testing / Commissioning	$263	$263	$
9. Project Mgmt. Team	$12	$48	$36
10. Removals	$38	$38	$
11. Other	$	$115	$115
12. Risks	$343	$343	$
SUBTOTAL DIRECTS W/ RISKS	$1,891	$2,937	$1,046
13. Indirects/Overhead	$1,110	$1,110	$
14. AFUDC	$89	$318	$229
PROJECT TOTAL – BASELINE BUDGET	$3,090	$4,365	$1,275
15. Contingency	$77	$77	$
TOTAL CAPITAL REQUEST	$3,167	$4,442	$1,275
16. Reimbursables/Customer Contribution	$	$	$
PROJECT TOTAL (LESS REIMBURSABLES)	$3,167	$4,442	$1,275

Total Supplement Request by Year

(NOTE: This table should show only the supplement request)

Note: Dollar values are in thousands and rounded to nearest thousand:

Line item Category	2023	2024	2025	2026	Total
1. ROW / Easements / Land Acquisition	$0.2	$	$	$	$0.2
2. Environmental Approvals / Permits	$65	$5	$23	$	$93
3. Outreach	($3)	$	$3	$	$
4. Siting Approvals / Permits	$	$	$	$	$
5. Engineering / Design	$122	$3	$10	$	$135
6. Materials (Eversource purchased)	$393	$12	$	$	$405
7. Construction (incl matl's by contractors)	$	$64	$198	$	$262
8. Testing / Commissioning	($52)	$	$52	$	$
9. Project Mgmt. Team	$27	$6	$3	$	$36
10. Removals	($17)	$6	$11	$	$
11. Other	$82	$20	$13	$	$115
12. Risks	($343)	$	$343	$	$
SUBTOTAL DIRECTS W/ RISKS	$274	$116	$656	$	$1,046
13. Indirects/Overhead	($250)	$94	$156	$	$
14. AFUDC	$8	$150	$71	$	$229
PROJECT TOTAL – BASELINE BUDGET	$32	$360	$883	$	$1,275
15. Contingency	($77)	$	$77	$	$
TOTAL CAPITAL REQUEST	($45)	$360	$960	$	$1,275
16. Reimbursables/Customer Contribution	$	$	$	$	$
PROJECT TOTAL (LESS REIMBURSABLES)	($45)	$360	$960	$	$1,275
O&M	$	$	$	$	$
TOTAL REQUEST	($45)	$360	$960	$	$1,275