EVERSOURCE

Operations Project Approval Form

Project Title: Replace Aluminum Bus Network Units	Project Number: CD02788
Date Prepared: 04/08/2026	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** NETWORK XFMR + PROTECTOR REPL
Project Initiator: [redacted]	**Project Type:** Specific
Initiating Organization: Distribution	**Capital Investment part of original Op Plan:** Yes
Project Manager: [redacted]	**Emergency Related Request?** No
Project Sponsor: [redacted]	**Facility Type** (check all that apply): ☐ PTF ☐ non-PTF ☒ Distribution ☐ N/A (General Plant)
Required in service date: December 31, 2027	**NWS Excludable:** ☒ Yes ☐ No
Total Capital Request: $2,045.2K	**Authorization Type:** Full Funding

1. Executive Summary

CD02788 is established to address network units that contain aluminum buses.

- Aluminum buses can create dangerous conditions when exposed to water.
- Due to the safety concerns inherent to aluminum buses, Eversource is proactively replacing network units that contain them.
- [redacted] network units with aluminum buses have been identified for replacement.
- Replacement includes network transformer, protector and relay for each location.

- Project Location
  - Division: Central
  - District: Hartford
  - Town: Hartford

- The Partial Funding Estimate (PFE) for this project was $1,694K and was approved at the 01/15/2026 CTPAC.
- The Full Funding Estimate (FFE) is $2,045.2K, a difference of $351.2K, a 21% increase.
  - Increase driven by higher loader costs.

- The difference between the Partial and Full Funding estimates:
  - Directs: Partial = $1,189K vs. Full = $809.1K
  - Indirects: Partial = $504.5K vs. Full = $1,236K

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	2026	2027	Total
Direct Capital Costs			
Internal Labor and Construction Equipment	169.9	169.9	339.8
Outside Services	14.7	14.7	29.4
Materials	53.4	53.4	106.7
Removals	73.6	73.6	147.3
Risk and Contingency	93.0	93.0	185.9
Other	0.0	0.0	0.0
Subtotal – Direct Costs	**404.6**	**404.6**	**809.1**
Indirect Capital Costs			
Indirect/Overheads (including benefits)	618.0	618.0	1,236.0
Capitalized interest or AFUDC, if any	0.0	0.0	0.0
Subtotal – Indirect Costs	**618.0**	**618.0**	**1,236.0**
Total Gross Capital Costs	**1,022.6**	**1,022.6**	**2,045.2**
Customer Contribution	0.0	0.0	0.0
Total Net Capital Project Costs	**1,022.6**	**1,022.6**	**2,045.2**

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

- Westinghouse CM-22 style network protectors manufactured between 1950 and 1961 may contain aluminum bus bars.
- When an aluminum bus is exposed to moisture, a potentially volatile atmosphere of aluminum oxide and hydrogen gas may be formed within the network protector where an electrical ignition source exists or when energized.
- The electric utility industry including Eaton, the current manufacturer of CM-22 network protectors, has identified network protectors constructed with aluminum bus bar to be a significant safety risk and recommend the replacement of these units when found.

b. Project Need

- Replace network units containing aluminum buses to prevent potentially dangerous conditions. This includes replacing network transformer, network protector and relays for all [redacted].

c. Project Scope

[redacted]

[redacted]

4. Alternatives Considered

NWS Exclusion Criteria (select all that apply)

☐ Project cost < $250k	☐ New Service
☐ CDOT Relocation	☐ Generator interconnection project
☒ Maintenance, Asset condition or safety related*	

*Maintenance, Asset condition or safety related justification: Due to the dangerous conditions aluminum buses present when combined with water, the network units are being replaced for the safety of Eversource personnel, other equipment and the public.

Project Option Comparison

Design Criteria	Option	
	1 – Replace AL bus network units	2- Do Nothing
Required to meet project need		
No network units containing aluminum buses	X	
Eliminates potential danger caused by AL buses	X	
Additional Benefits (not required to meet scope of project)		
Maintenance time reduced	X	
Authorization Type	Partial	Partial
Capital Cost	$2,045.2K	$0
Expense Cost	$137K	$0
Total Cost	$2,182.2K	$0
Preferred option	X	

Option Summary

Preferred: Replacing the network units containing aluminum buses is the only option considered due to the potentially dangerous conditions they possess.

Other(s): The Do Nothing option leaves the aluminum bus network protectors in service creating a dangerous environment. Due to the safety concerns, this option was not selected.

5. Project Schedule

Milestone/Phase Name	Estimated Date
Partial Approval	Feb 2026
100% Detailed Engineering Completion	Apr 2026
Fully Funded	Apr 2026
Construction Start	Aug 2026
In Service Date	Dec 2027

6. Regulatory Decisions

N/A

7. Codes and Standards

N/A

8. Risk and Contingencies

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation

Actual cost higher than estimated due to scope changes.	2026	High	Included contingency costs in the funding request. Perform detailed Field Analysis and walk down in project development to avoid issues.
Internal construction resources not available to perform the work.	2026	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Internal engineering resources not available to perform the work.	2026	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2026	Medium	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2026	Medium	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2026	Low	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.

9. References

References
1. N/A

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

Attachment	Included in Submittal?
A. Partial Funding PAF	*YES*

EVERSOURCE

Operations Project Approval Form

Attachment A: Partial Funding PAF

Project Title: Replace Aluminum Bus Network Units	**Project Number: CD02788**
Date Prepared: 01/15/2026	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** NETWORK XFMR + PROTECTOR REPL
Project Initiator: [redacted]	**Project Type:** Specific
Initiating Organization: Distribution	**Capital Investment part of original Op Plan:** Yes
Project Manager: [redacted]	**Emergency Related Request?** No
Project Sponsor: [redacted]	**Facility Type** (check all that apply)**:** ☐ PTF ☐ non-PTF ☒ Distribution ☐ N/A (General Plant)
Required in service date: December 2027	**NWS Excludable:** ☒ Yes ☐ No
Total Capital Request: $1,694K	**Authorization Type: Partial Funding**

11. Executive Summary

CD02788 is established to address network units that contain aluminum buses.

- Aluminum buses can create dangerous conditions when exposed to water.
- Due to the safety concerns inherent to aluminum buses, Eversource is proactively replacing network units that contain them.
- [redacted] network units with aluminum buses have been identified for replacement.
- Replacement includes network transformer, protector and relay for each location.

- Project Location
  - Division: Central
  - District: Hartford
  - Town: Hartford

12. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	Year 2026	Year 2027	Total
Direct Capital Costs			
Internal Labor and Construction Equipment	43.8	43.8	87.6
Outside Services	207.7	207.7	415.3
Materials	197.2	197.2	394.4
Removals	142.6	142.6	285.1
Risk and Contingency	3.7	3.7	7.5
Other	0.0	0.0	0.0
Subtotal – Direct Costs	**594.9**	**594.9**	**1,189.8**
Indirect Capital Costs			
Indirect/Overheads (including benefits)	226.0	226.0	452.1
Capitalized interest or AFUDC, if any	26.2	26.2	52.4
Subtotal – Indirect Costs	**252.2**	**252.2**	**504.5**
Total Gross Capital Costs	**847.2**	**847.2**	**1,694.3**
Customer Contribution	0	0	0
Total Net Capital Project Costs	**847.2**	**847.2**	**1,694.3**

13. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

- Westinghouse CM-22 style network protectors manufactured between 1950 and 1961 may contain aluminum bus bars.
- When an aluminum bus is exposed to moisture, a potentially volatile atmosphere of aluminum oxide and hydrogen gas may be formed within the network protector where an electrical ignition source exists or when energized.
- The electric utility industry including Eaton, the current manufacturer of CM-22 network protectors, has identified network protectors constructed with aluminum bus bar to be a significant safety risk and recommend the replacement of these units when found.

b. Project Need

- Replace network units containing aluminum buses to prevent potentially dangerous conditions. This includes replacing network transformer, network protector and relays for all [redacted].

c. Project Scope

[redacted]

[redacted]

14. Alternatives Considered

NWS Exclusion Criteria (select all that apply)

☐ Project cost < $250k	☐ New Service
☐ CDOT Relocation	☐ Generator interconnection project
☒ Maintenance, Asset condition or safety related*	

*Maintenance, Asset condition or safety related justification: Due to the dangerous conditions aluminum buses present when combined with water, the network units are being replaced for the safety of Eversource personnel, other equipment and the public.

Project Option Comparison

Design Criteria	Option	
	1 – Replace AL bus network units	2- Do Nothing
Required to meet project need		
No network units containing aluminum buses	X	
Eliminates potential danger caused by AL buses	X	
Additional Benefits (not required to meet scope of project)		
Maintenance time reduced	X	
Authorization Type	Partial	Partial
Capital Cost	$1,694K	$0
Expense Cost	$53K	$0
Total Cost	$1,747k	$0
Preferred option	X	

Option Summary

Preferred: Replacing the network units containing aluminum buses is the only option considered due to the potentially dangerous conditions they possess.

Other(s): The Do Nothing option leaves the aluminum bus network protectors in service creating a dangerous environment. Due to the safety concerns, this option was not selected.

15. Project Schedule

Milestone/Phase Name	Estimated Date
Partial Approval	Feb 2026
100% Detailed Engineering Completion	Apr 2026
Fully Funded	July 2026
Construction Start	Aug 2026
In Service Date	Dec 2027

16. Regulatory Decisions

N/A

17. Codes and Standards

N/A

18. Risk and Contingencies

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2026	High	Included contingency costs in the funding request. Perform detailed Field Analysis and walk down in project development to avoid potential issues.

Internal construction resources not available to perform the work.	2026	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Internal engineering resources not available to perform the work.	2026	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2026	Medium	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2026	Medium	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2026	Low	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.

19. References

References
1. N/A

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

Attachment	Included in Submittal?
A. Cost Estimate	*YES*
B. Aluminum Bus Examples	*YES*
C. Project Authorization Checklist	*YES*
D. Initial Funding PAF	*YES*

Attachment A: Cost Estimate

Connecticut Light & Power
A Northeast Utilities Company

Project Design Alternative: 1

Project: CD02788 - Replace Aluminum Bus Network Units

Design Alternative CD02788-01

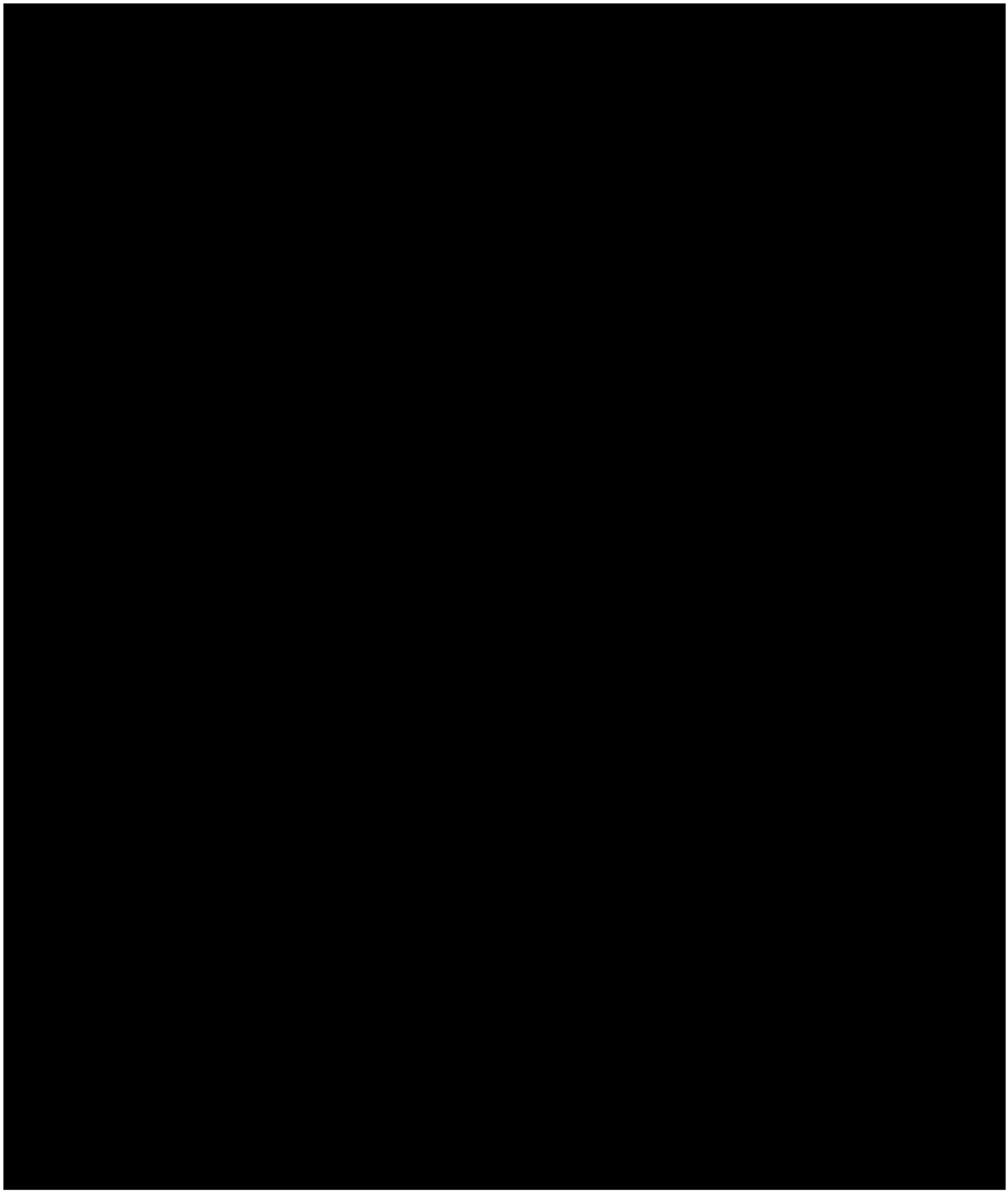
Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	24.00%
SubTotal:	$1,409,241
Contingency Amount:	$338,218
Estimate:	$1,747,458
Reimbursement:	$0
Net Amount:	**$1,747,458**
Description:	

Item Description	CU	$ / Per	Qty	Amount
SWITCHING [redacted]	25-ALL15	[redacted]		$189,939.80
UG CABLE [redacted]	25-UG117			$52,000.00
XF [redacted]	25-UG134			$557,024.00
XF [redacted]	25-UG135			$389,916.80
XF [redacted]	25-UG136			$67,600.00
OTHER OTHER [redacted]	25-ALL14			$20,000.00
TRAFFIC OH/DB/UG - Traffic Control - Police Officer 2 officer per day X 10 days @ $1k/ per day per cop	25-ALL18			$20,000.00
UG CABLE [redacted]	25-UG113A			$97,760.00
OTHER OTHER [redacted]	25-ALL14			$15,000.00

Attachment B: Aluminum Bus



Attachment C: Project Authorization Checklist

Project Authorization Checklist

Project Initiator [redacted]

Project #: CD02788

Project Title: Replace Aluminum Bus Network Units

Funding Type: Partial

☒ Partial PAF ☐ Full PAF

Project Alternatives:

☒ Options considered ☒ Explanation why alternatives were not selected

☐ NWA considered ☒ Explanation why preferred option was selected

Project Requirements (Review all, and check all that apply):

NR = Not Required R=Required C = Complete

NR	R	C		NR	R	C	
☒	☐	☐	Easement	☒	☐	☐	TD007
☒	☐	☐	Trimming Estimate Received	☒	☐	☐	ROW trimming Estimate Received
☒	☐	☐	Environmental Review Initiated	☐	☐	☒	Review with Operations
☒	☐	☐	Permits (state roads)	☒	☐	☐	Underground permits
☒	☐	☐	S &C Settings	☒	☐	☐	Material long lead
☒	☐	☐	Synergi load flow				

PAF Documents Attached:

☐ One Lines ☐ Geographical Map ☐ Load Projections ☒ Estimates

☐ Other Documents (List):

PAF Review Complete:

☒ Lead Reviewed by: [redacted] Date: 1/15/2026

☐ Manager Reviewed by: _____ Date: _____

EVERSOURCE

Operations Project Approval Form

Attachment D: Initial Funding PAF

Project Title: Replace Aluminum Bus Network Units	**Project Number: CD02788**
Date Prepared: 11/14/2025	**Company:** Eversource CT
Organization: Distribution Engineering	**Class(es) of Plant:** D Line
Project Initiator: [redacted]	**Project Category:** UG CABLE & EQUIPMNT REPLACEMNT
Project Manager: [redacted]	**Project Type:** Specific
Project Sponsor: [redacted]	**Capital Investment part of 5-year plan?** Yes
	Emergency Related Request? No
Total Request: $30K	**Authorization Type:** Initial Funding

1. Project Need Statement

Project CD02788 was established to address network units with Aluminum Buses. This legacy equipment creates dangerous conditions with water intrusion and have been mandated to be replaced. [redacted] units have been identified in the Hartford AWC.

Project Location

a. Division: Hartford AWC

2. Project Objectives

Project Initiator: [redacted]

Engineering Approval: