EVERSOURCE

Project Approval Form

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|---|---|
| **Project Title:** Network Transformer Replacements – CT | **Project Number:** CDNXANNL24 |
| **Date Prepared:** 08/21/2024 | **Company:** Eversource CT |
| **Organization:** Distribution Engineering | **Project Category:** NETWORK XFMR + PROTECTOR REPL |
| **Project Initiator:** [redacted] | **Project Type:** Annual |
| **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:** 12/31/2024 | |
| **Total Capital Request:** $810.8K | **Authorization Type:** Full Funding |

# 1. Executive Summary

Full Funding of is being requested at a cost of $810.8K. This project pertains to high volume work orders not to exceed $500K per work order and covers the entire state of CT. Capital work orders initiated against this annual project must include total costs less than or equal to $500K. Any work order exceeding $500K will require a separate Project Authorization Form (PAF).

This project was created as a blanket project to replace defective network transformers and protectors throughout Connecticut in 2024.

Replacement of defective network units improve the long-term performance of the feeder and the entire primary and network secondary system. The replacement cost per unit includes the cost of the unit, as well as rigging, traffic control or manhole cleaning cost as necessary. This cost includes both transformer and protector or individual transformer only or protector only.

## 2. Project Cost Summary

| Capital Costs | 2024 | Total |
|---|---|---|
| Internal Labor and Construction Equipment | 157.8 | 157.8 |
| Outside Services | 94.0 | 94.0 |
| Materials | 102.9 | 102.9 |
| Removals | 114.5 | 114.5 |
| Other | 3.1 | 3.1 |
| Risk and Contingency | 0.0 | 0.0 |
| **Subtotal** | **472.3** | **472.3** |

| Indirect Capital Costs | 2024 | Total |
|---|---|---|
| Indirects/Overheads (including benefits) | 335.3 | 335.3 |
| Capitalized interest or AFUDC, if any | 3.2 | 3.2 |
| **Subtotal** | **338.5** | **338.5** |
| | | |
| **Total Capital Costs (Gross)** | **810.8** | **810.8** |
| | | |
| Less Total Customer Contribution | **0.0** | **0.0** |
| | | |
| **Project Costs (Net)** | **810.8** | **810.8** |

# 3. Technical Justification

## Background, Project Need/Justification, and Project Scope

### a. Background

Annual maintenance on network transformers and protectors involve inspecting, testing, and operating the units as well as taking oil samples. Over time, the network units may deteriorate in operation and physical condition due to exposure to the elements in the outside environment.

### b. Project Need

Pro-actively replace defective network units prior to electrical failure. Network units identified as defective or obsolete should be replaced in a timely manner. If the unit were to fail while in service, it is likely to cause an outage on the circuit that feeds the unit.
Below are some examples of defects identified when maintenance is performed on network units:

Visual Inspection

- Excessive rust
- Oil leaking on the ground
- Oil leaking from transformer into protector

Maintenance Tests

- Failed meggar test
- Failed ductor test

Operation

- Protector has a high number of operations since last maintenance

Since failure of an in-service network unit can cause a feeder outage, defective network units are usually replaced in a timely manner.

### c. Project Scope

Replace the entire network unit (transformer and protector), or the transformer only or the protector only. Quite often, replacement of the network transformer also requires the replacement of a section of lead cable that feeds the transformer.

**Major Material:**
Network transformers
Network protectors
Primary cable

## 4. Alternatives Considered

Do nothing: leaving defective network units in-service for an extended period of time could have an adverse impact on electrical system performance.

## 5. Project Schedule

Add any additional milestones that are pertinent to the project

| Milestone/Phase Name | Estimated Date |
|---|---|
| Construction Start | 01/01/2024 |
| In Service Date | 12/31/2024 |

## 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. | 2024 | Low | 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. | 2024 | Low | Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost. |

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|---|---|---|---|
| Internal engineering resources not available to perform the work. | 2024 | Low | Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost. |
| Storm delays | 2024 | Low | If storm activity delays work, we may be forced to use external resources. |
| System abnormal configuration | 2024 | Medium | Schedule work to minimize system abnormal time. Most of this work will require system to be abnormal for any extended period of time. |

## 9.

| References |
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| 1. N/A |

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

| Attachment | Included in Submittal? |
|---|---|
| A. Cost Estimate | *No* |
| B. Partial PAF | *No* |