Operations Project Authorization Form

Project Title: [redacted]	**Project Number: CD01679**
Date Prepared: 10/15/2023	**Company:** Eversource CT
Organization: Electric System Operations	**Project Category:** DB CABLE REPLACE-SPECIFIC PROJ
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: 6/30/2023	
Total Capital Request: $365.3K	**Authorization Type:** Full Funding

1. Executive Summary

[redacted] is a direct buried development in [redacted] The development was installed in the late 80's with [redacted], at that time the plans were for the development to increase in size, but this never materialize. This left the 100 direct buried customers radially fed.

This project will bring a [redacted]

The initial engineering estimate for this project was approved for $143,547K on Feb 25, 2021. However, the initial estimate did not include additional unforeseen cost incurred when constructions crews encountered a significant amount of ledge which prevented them from drilling and installing approximately 1,700 ft of cable in conduit, which resulted in extra cost for mobilization and demobilization. Consequently, Field conditions warranted to utilize open trenching and digging up multiple sections of the roadway/crossing resulting in additional paving cost.

Therefore, the full funding request for this project is $365K dollars and includes unforeseen field conditions explained above and it also reflects an increase of direct capital cost $219.6k and an increase of indirect cost $145.7K that resulted from a revised estimate per unit cost in labor and materials.

2. Project Cost Summary

Note: Dollar values are in thousands.

Financial Evaluation

Capital Costs	2022	2023	2023+	Total
Internal Labor and Construction Equipment	0.0	0.0	0.0	0.0
Outside Services	0.3	140.0	0.0	140.4
Materials	0.0	6.7	0.0	6.7
Removals	0.2	65.2	0.0	65.4
Risk and Contingency	0.0	7.2	0.0	7.2
Other	0.0	0.0	0.0	0.0
Subtotal	**0.5**	**219.1**	**0.0**	**219.6**

Indirect Capital Costs	2022	2023	2023+	Total
Indirects/Overheads (including benefits)	0.3	136.5	0.0	136.8
Capitalized interest or AFUDC, if any	0.0	8.8	0.0	8.9
Subtotal	**0.4**	**145.3**	**0.0**	**145.7**
Total Capital Costs (Gross)	**0.9**	**364.5**	**0.0**	**365.3**
Less Total Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Project Costs (Net of Reimbursement)	**0.9**	**364.5**	**0.0**	**365.3**

3.Technical Justification

a. Background

The operation department asked us to investigate the development because of an outage that happen on 2/8/21 were a plow had hit a transformer**.** Per DTR 07.121 if a direct buried subdivision has more than 27 customers it should be looped.

Business Process and / or Technical Improvements:
With having a back-up feed to the development, the restoration for a cable fault being restored in 120 minutes is greatly decreased, meeting Eversource SAIDI goal. DTR07.031

b. Project Need

Project Need Statement

Meet its reliability goal of CAIDI by improving the electrical system with a loop in conduit.

Project Objectives:

[redacted]

c. Project Scope

Project Scope:

[redacted]

Major Material:

1. 1,700 feet #1 Al EPR cable
2. 4 concrete 36” round hand holes
3. Single phase riser

4. Alternatives Considered

Alternatives were considered (please describe below)

The only alternative considered was to do nothing but this will not remediate any restoration time for the [redacted] or comply with DTR 07.121

5. Project Schedule

Milestone/Phase Name	Estimated Completion Date
Preliminary Approval	12/13/2019
Detailed Design	12/22/2021
Construction Start Date	12/01/2022
In Service Date	6/30/2023

6. Regulatory Decisions

No

7. Codes and Standards

- DTR 07.121
- DTR 07.031

8. Risk and Contingencies

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2023	Low	Included contingency costs in the funding request. Perform detailed Field Analysis and walk down in project development to avoid potential issues.
Customer Permission / Siting Council / Municipal approvals	2023	Medium	Design to minimize customer impact. Project Preplanning and customer/community outreach.
Internal construction resources not available to perform the work.	2023	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.	2022	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2023	Low	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2023	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2023	Low	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.

9. References

References

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

Attachment	Included in Submittal?
A. Project Need Statement	*YES*
B. Wellswood Map	*YES*

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

[redacted] Primary DB.pdf

CD01679_project_needs_statement.pdf

- *Attachment (Initial Engineering Estimate)*

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01679
[redacted]

Work Classification

Category: Line
Type: REL2
Type Desc: DB CABLE REPLACE-SPECIFIC PROJ
Work Type:

Ownership / Management

AWC: East Hampton
Statewide: No
Owner: [redacted]
Manager: [redacted]

Project Information

Status: Draft
SPS #:
AIS Score:
Associated Projects:
Assignment ID:
Patrol Find ID:

Budget Summary - Preferred Option

Create loop

2022

ID	Title	Status	Rev #	Contingency	Expenditure Amount	Net Estimate
1	Install loop for DB development	Prelim	0	24%	$143,547	$143,547
				2022 Total:	$143,547	$143,547
				Total Project:	$143,547	$143,547

- Attachment B [redacted] Primary DB DTR 07.121)

Underground/DB Design DB General
Section 07.12
07.121
Eversource Energy Distribution System Engineering Manual
February 2003
SCOPE – **DSEM Section 07** contains Design & Application Standards which provide application guidelines for
designing the primary portion of distribution systems for residential subdivisions, condominiums and apartment complexes.
GENERAL – The Standards in this section schematically illustrate typical layouts of primary cable, transformers
and switching equipment in systems designed to serve residential installations. In most cases, residential complexes can be served with single–phase systems. In some cases, however, the magnitude of single–phase
loads is large enough that a three–phase system is required for load balancing and proper fuse coordination.
The Standards in this section provide typical layouts for both single–phase and three–phase systems. The decision to design a three–phase system should be based on a careful analysis of the estimated loads and
the effect these loads would have on the circuit loads.
LOOP SYSTEMS – Whenever economically or physically practicable, residential subdivisions, condominiums and
apartment complexes should be served using loop feed systems. This will speed restoration in the event of
equipment failure. If a residential complex has two or more entrance roads, with suitable distribution facilities
available at each entrance, a loop feed system is usually physically practicable. If only one entrance road is
available, consideration should be given to a loop system, if the complex has at least 27 customers. Loop systems shall always be supplied from separate riser poles.

- Attachment C (DTR 07.042)

[redacted]

- Attachment D (Wellswood Primary Map)



EVERSOURCE

Project Approval Form

Operations Project Authorization Form

Date Prepared: 2/14/21	**Project Title:** [redacted]
Company/ies: Eversource CT	**Project ID Number: CD01679**
Organization: Distribution Electric	**Class(es) of Plant: Distribution**
Project Initiator: [redacted]	**Project Category: Direct Buried Cable**
Project Manager: [redacted]	**Project Type: Reliability**
Project Sponsor: [redacted]	**Project Purpose: Crete DB loop 100 Customers**
Estimated in service date: 12/31/2022	**If Transmission Project: PTF? N/A**
Eng. /Constr. Resources Budgeted?	**Capital Investment Part of Original Operating Plan?**
Authorization Type: Full Funding	**O&M Expenses Part of the Original Operating Plan?**
Total Request: $143,547	

Financial Requirements:
Project Authorization
ERM: _____

FP&A: _____

Executive Summary

[redacted] is a direct buried development in [redacted]. The development was installed in the late 80's with [redacted], at that time the plans were for the development to increase in size, but this never materialize. This left the 100 direct buried customers radially fed.

[redacted]

[redacted]

Project Approval Form

Project Costs Summary

Note: Dollar values are in thousands

	Prior Authorized	2022	20__	20__+	Totals
Capital Additions - Direct	$0	$86,574	$0	$0	$86,574
Less Customer Contribution	$0	$0	$0	$0	$0
Removals net of Salvage ____%	$0	$3,624	$0	$0	$3,624
Total - Direct Spending	$0	$90,198	$0	$0	$90,198
Capital Additions - Indirect	$0	$49,004	$0	$0	$49,004
Subtotal Request	$0	$139,202	$0	$0	$139,202
AFUDC	$0	$2,234	$0	$0	$2,234
Total Capital Request	$0	$141,436	$0	$0	$141,436
O&M	$0	$2,111	$0	$0	$2,111
Total Request	$0	$143,547	$0	$0	$143,547

Financial Evaluation

Note: Dollar values are in thousands

Direct Capital Costs	Year 1	Year 2	Year 3+	Total
Straight Time Labor	$2,066	$0	$0	$2,066
Overtime Labor	$1,401	$0	$0	$1,401
Outside Services	$79,178	$0	$0	$79,178
Materials	$7,629	$0	$0	$7,629
Other, including contingency amounts (describe)	($76)	$0	$0	($76)
Total Direct Costs	**$90,198**	**$0**	**$0**	**$90,198**
Indirect Capital Costs	**Year 1**	**Year 2**	**Year 3+**	**Total**
Indirects/Overheads (including benefits)	**$49,004**	**$0**	**$0**	**$49,004**
Capitalized interest or AFUDC, if any	**$2,201**	**$0**	**$0**	**$2,201**
Total Indirect Costs	**$51,205**	**$0**	**$0**	**$51,205**
Total Capital Costs	**$141,403**	**$0**	**$0**	**$141,403**
Total Capital Project Costs	**$141,403**	**$0**	**$0**	**$141,403**
Total O&M Project Costs	**$2,144**	**$0**	**$0**	**$2,144**
Total Project Cost	**$ 143,547**	**$ -**	**$ -**	**$ 143,547**

Technical Justification:

EVERSOURCE

Project Approval Form

Project Need Statement
Meet its reliability goal of CAIDI by improving the electrical system with a loop in conduit.

Project Objectives

To improve the reliability for 100 customers in a radially fed direct buried development.

Project Scope

[redacted]

Major Material:

1. 1,700 feet #1 Al EPR cable
2. 4 concrete 36" round hand holes
3. Single phase riser

Background / Justification
The operation department asked us to investigate the development because of an outage that happen on 2/8/21 were a plow had hit a transformer.
Per DTR 07.121 if a direct buried subdivision has more then 27 customers it should be looped.

Business Process and / or Technical Improvements:

With having a back-up feed to the development, the restoration for a cable fault being restored in 120 minutes is greatly increased, meeting Eversource SAIDI goal. DTR07.031

Alternatives Considered with Cost Estimates
No Alternatives currently.

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Preliminary Approval	3/1/21
Detailed Design	10/31/21
Construction Start Date	5/5/22
Construction End Date	12/30/22

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2023	Low	Included contingency costs in the funding request. Perform detailed Field Analysis and walk down in project development to avoid potential issues.
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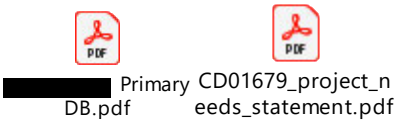

Table 4 – DB Design Selection Guide Considering All Factors
Based on Customer's Heat Source

