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Operations Project Authorization Form

Project Title: [redacted] Reconductor Glenwood Ave	**Project Number: CD01899**
Date Prepared: 08/07/2023	**Company:** Eversource CT
Organization: Electric Field Operations	**Class(es) of Plant:** D Line
Project Initiator: [redacted]	**Project Category:** RELIABILITY IMPROVE SPEC PROJ
Project Manager: [redacted]	**Project Type:** Specific
Project Sponsor: [redacted]	**Capital Investment part of original Operating Plan:** Yes
Estimated in service date: 4/30/23	**Emergency Related Request?** Yes
Eng./Constr. Resources Budgeted? Yes	**Facility Type** (check all that apply): ☐ PTF ☐ non-PTF ☒ Distribution
Total Gross Capital Request: $249K	**Authorization Type:** Full Funding

Executive Summary

Glenwood Ave, New London, is a [redacted] There was an interruption on 12/24/21, 6:06 p.m., which is the reason this lateral started getting attention. Two fuses were found open, cause unknown. One week later, on 12/30/21, 7:06 p.m., there was another outage, the same two fuses were found open. The lineman patrolled and found a dead goose in the road in the area of Alewife cove. There were also two outages in April, 2021, cause unknown. To eliminate these outages in the future, the proposal is to reconductor Glenwood Ave. with 556 tree wire and install a Smart Switch.

There has been a total of five interruptions to these customers in 2021; four on these fuses and one upstream on the [redacted]

There were three interruptions in 2020, but only one (1/18/20) was on these fuses due to a limb on the primary. The other two were upstream on the [redacted]

There was one interruption in 2019, but that was due to a gas leak when the Williams St. 9L bus had to be de-energized.

No interruptions in 2018. [redacted]

1/6/22 – Initial Funding approved for $359K.

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8/9/23 – Full Funding request:

- Initial Funding: $359K.
- Full Funding (actual spend): $249K.
- Difference of 110K, or 69% of the Initial Funding financials.
- There is no scope change, all work is written and constructed as designed.
- Local district crews assigned to project.
- Work is complete as of 4/21/23.

Project Costs Summary

Financial Evaluation

Capital Costs	2022	2023	2024	Total
Internal Labor and Construction Equipment	25.8	4.6	0.0	30.4
Outside Services	19.5	3.5	0.0	23.0
Materials	43.4	7.7	0.0	51.0
Removals	38.1	6.7	0.0	44.8
Risk and Contingency	0.0	0.0	0.0	0.0
Other	0.1	0.0	0.0	0.1
Subtotal	**127.0**	**22.4**	**0.0**	**149.4**

Indirect Capital Costs	2022	2023	2024	Total
Indirects/Overheads (including benefits)	81.8	14.4	0.0	96.3
Capitalized interest or AFUDC, if any	3.0	0.5	0.0	3.5
Subtotal	**84.8**	**15.0**	**0.0**	**99.8**
Total Capital Costs (Gross)	**211.8**	**37.4**	**0.0**	**249.2**
Less Total Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Project Costs (Net of Reimbursement)	**211.8**	**37.4**	**0.0**	**249.2**

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Technical Justification:

Project Need, Objective and Justification:

There have been [redacted]
Three interruptions were of unknown cause. The fourth interruption's cause was determined to be a goose that flew into the bare primary conductor. There was also a fifth interruption to these [redacted] due to a tree upstream, causing the [redacted] to open. Reconductoring with 556 tree wire will help prevent interruptions in the future. Also, a Smart Switch will be installed for sectionalizing purposes and to reduce customer zones.

Project Objectives

Reconductor Glenwood Ave. and install a Smart Switch to prevent future interruptions and improve the overall reliability to these 316 customers.

Cost per Customer Minute Saved

Segment	Cost	% Improve	# Events/4 years	Cust Min	Cost/CMS
1	$183K	30%	6 non-storm	91,629	$26.63
2	$118K	30%	6 non-storm	91,629	$17.21
3	$487K	30%	1 non-storm, 2 storm	2,340	$340.74
4	$64K	30%	6 non-storm	91,629	$9.29
5	$58K	30%	6 non-storm	91,629	$5.03

Cost per Customer Interruption Saved

Segment	Total Customer Interruptions	Cost/Customer Interruptions Saved
1	[redacted]	$2,120.39
2		$1,370.01
3		$324,654.72
4		$739.21
5		$400.25

Project Scope:

[redacted]

Major Material:

Glenwood Ave.
2,400 feet three-phase 556 tree wire
11 Eversource poles
3 overhead transformers
1 Cooper Nova recloser and Form 6 control

Background:

Four years outage history – Glenwood Ave., pole 5869

2021		
12/30	56 min	goose
12/24	1:29	unknown
4/15	1:07	unknown
4/10	1:43	unknown
2020		
1/18	1:28	limb
2019		
None		
2018		
None		

Four years outage history – Great Neck Rd., pole 2897

2021		
8/22	6:56	limb
6/1	1:57	limb (fuse mis-coordination)
2020		
11/30	6:38	branch (storm)
2019		
None		
2018		
None		

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Alternatives Considered:

[redacted]

Estimate Type	Full	Partial	Partial	
Total Cost	$267K	$448K	$64K	
Capital Cost	$249K	$424K	$61K	
Expense Cost	$18K	$24K	$3K	
Cost/CM saved	$31.37	$340.74	$9.29	
Cost/CI Saved	$2,520	$324,654	$400	
Preferred Option	X			

The preferred option was chosen because reconductoring Glenwood Ave. not only provides better reliability but also higher circuit ampacity, while hardening the system by replacing outdated primary wire and poles. Glenwood Ave. experienced five interruptions beyond the 100K fuses. Reconductoring with 556 tree wire will help improve reliability.

Alternative 2 was not chosen because the reliability improvement was not justified based on the outage history.

Alternative 3 was not chosen because this focused on reconductoring only a very small portion crossing the cove but would do nothing for the remainder of the road where outages occurred.

Regulatory Approvals:

Are Regulatory body approvals needed for the project?

Choose an item.

If yes, provide detailed regulatory approvals

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Project Schedule

Milestone/Phase Name	Estimated Date
100% Engineering Completion	3/30/22
Construction Start	7/1/22
Testing/Commissioning	8/31/22
In Service Date	8/31/22

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2022	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	2022	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach.
Internal construction 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.
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	2022	Medium	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.

Storm delays	2022	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2022	Low	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.
Technological risks involving integration of new technology	2022	Low	Before use of new technology ensure support of standards and manufacturer. Schedule project to accommodate for extra time or ensure new technology is not on the critical path.
Wetlands / Environmentally sensitive area	2022	Low	Use of mats and specialty equipment, only work during certain times of the year.

References

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


Glenwood Ave 4 Year Outage History 12-31


Great Neck Rd 4 Year History 12-31-21.xlsx


CD01899 CMS & CMI Sheet.xlsx


CD01899 Circuit Map Reconductor Glenwoc