EVERSOURCE

Project Approval Form

Project Title: Eastern CEMI - Lateral Reconductoring	Project Number: CD02270
Date Prepared: 02/16/2024	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** RELIABILITY IMPROVE SPEC 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: 12/31/23	
Total Capital Request: $1,253.6K	**Authorization Type:** Full Funding

1. Executive Summary

This project addresses [redacted], and tree trimming will be performed to help reduce interruptions, thus improving circuit reliability, performance, and customer satisfaction.

District	Circuit	Device	DEMI	CEMI	Rec'd (ft)	Cost (K)
[redacted]						

2/16/24 – Full Funding request. The Partial Funding estimate is $972K, approved on 6/29/23. Full Funding estimate is $1,253.6K, $281.6K over the Partial Funding estimate, or 29% over. This work has been completed as written with a scope change to two workorders. The reasons for the increase can be attributed to the following:

Danielson

- Workorder 13340113, Norwich Rd, Plainfield – $34K over; due to generator rental for medical customer and contractor costs. No scope change.
- Workorder 13234800, Ross Hill Rd, Putnam – $43K over; due to more trimming required than estimated. No scope change.

East Hampton

- Workorder 13140099, Preston Ave, Middletown – $7K under. No scope change.
- Workorder 13142963, Goshen Hill Rd, Lebanon – $21K over; due to rock drilling that was not identified and excavation contractor to backfill holes and move conduit services to new poles.

Madison

- Workorder 13133985, Saw Mill Hill Rd, Guilford - $44K over; during the construction phase, it was identified to convert from 8.32 kV to 23 kV to receive the benefit of eliminating the stepdown transformer and increasing capacity. Scope change.
- Workorder 12782836, Grapevine Rd, Haddam - $115K over; project was written to local line crews, but started using contractors who were relocated mid-project, and the project reverted back to local line crews. No scope change.

New London

- Workorder 13174388, Holmes Rd, Montville - $36K under. No scope change.
- Workorder 13324910, Lantern Hill Rd, Ledyard - $70K over, identified 15 Frontier poles needing replacing, but Frontier was unable to set them, and all 15 poles required core boring. Also, 5 of the first 7 services required to be shifted were identified as being corroded where the aluminum service neutral connects to the copper secondary neutral. All services were #4 or #6 solid aluminum, and it was decided to replace all 54 services in the area being reconductoring. Scope change.

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	Year 2023	Year 2024	Year 2025	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	105.5	7.2	0.0	112.7
Outside Services	298.2	20.3	0.0	318.5
Materials	61.5	4.2	0.0	65.7
Removals	206.0	14.0	0.0	220.0
Risk and Contingency	0.0	24.6	0.0	24.6
Other	0.3	0.0	0.0	0.3
Subtotal – Direct Costs	**671.5**	**70.3**	**0.0**	**741.8**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	472.5	32.2	0.0	504.6
Capitalized interest or AFUDC, if any	6.7	0.5	0.0	7.2
Subtotal – Indirect Costs	**479.2**	**32.6**	**0.0**	**511.8**
Total Gross Capital Costs	**1,150.7**	**102.9**	**0.0**	**1,253.6**
Customer Contribution	0.0	0.0	0.0	0.0
Total Net Capital Project Costs	**1,150.7**	**102.9**	**0.0**	**1,253.6**

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

[redacted]

[redacted]

Town	Street	Pole	No. Cust.	No. Events	CEMI
[redacted]					

b. Project Need

[redacted]

Most of the outages were due to trees:

- Tree caused outage: 28
- Vehicle: 1
- Equipment: 1
- Unknown: 1

[redacted]

c. Project Scope

[redacted]

4. Alternatives Considered

Project Option Comparison

Design Criteria	Option	
	1 – Reconductor 8 laterals with 336 TW	2 – Reconductor 8 laterals with 1/0 TW
Authorization Type	Full	Partial
Capital Cost	$1,272.6K	$971.8K
Expense Cost	$72.4K	$55.2K
Total Cost	$1,345K	$1,027K
Preferred option	X	

There are two alternatives:

1) Option 1 calls to [redacted]
2) Option 2 is to [redacted]

5. Project Schedule

Add any additional milestones that are pertinent to the project.

Milestone/Phase Name	Estimated Date
Partial Approval	6/29/23
100% Detailed Engineering Completion	7/31/23
Fully Funded	2/1/24
Construction Start	9/1/23
In Service Date	12/31/23

6. Regulatory Decisions

7. Codes and Standards

8. Risk and Contingencies

Contingencies:

Risk Mitigation:

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2023	Medium	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	Low	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.	2023	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2023	Medium	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2023	Medium	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.

Technological risks involving integration of new technology	2023	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	2023	Low	Use of mats and specialty equipment, only work during certain times of the year.

9. References

References
1.

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

Attachment	Included in Submittal?
A. Cost Estimates	*YES*
B. Geographic Maps	*YES*

Attachment A – Cost Estimates

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02270

Lateral Reconductor - Eastern - CEMI

Project Option Summary

ID	Description	Segments	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)	Prfrd
O1	All 8 laterals, 2 per district	1,2,3,4,5,6,7 ,8	$1,026,946	$0	100%	$589.13	$91.72	☑

Segments

ID	Title	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)
1	Plainfield - FUSE_OH:315:27217988	$9,714			$13.09	$13.09
2	Putnam - FUSE_OH:348:27374022	$98,038			$819.03	$21.27
3	Middletown - FUSE_OH:2744:32039931	$321,928			$0.00	$53.09
4	Lebanon - FUSE_OH:579:27041585	$185,301			$3,759.41	$916.20
5	Guilford - FUSE_OH:1647:34382149	$52,819			$26.14	$8.67
6	Haddam - FUSE_OH:1662:31500385	$34,129			$17.18	$3.64
7	East Lyme - FUSE_OH:6894:34093813	$211,000			$165.45	$23.20
8	Ledyard - FUSE_OH:3962:34779643	$114,017			$136.77	$12.26

Asset & Investment Management System 6/28/2023 Page 2 of 22

Danielson AWC – Norwich Rd, Plainfield

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02270
Lateral Reconductor - Eastern - CEMI

Design Alternative CD02270-01

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	0.00%
SubTotal:	$9,714
Contingency Amount:	$0
Estimate:	$9,714
Reimbursement:	$0
Net Amount:	$9,714

Description: Reconductor one span on side tap on Norwich Rd

Item Description	CU	[redacted]	Amount
OTHER OTHER estimate per workorder 13340113	23-ALL14		$9,714.00

Associated / Impacted Devices

Status	[redacted]	Street / Cross St	Structure / Town	[redacted]	Cust	Notes
Existing		NORWICH RD JUDY RD	315 PLAINFIELD		3	

Reliability Projection

Title:

Outage Start Date: 1/1/2019 Outage End Date: 1/1/2023 Years History: 4.00

[redacted]

Asset & Investment Management System 6/28/2023 Page 5 of 22

Attachment B – Final Approved Work and Alternative

Danielson AWC – Ross Hill Rd, Putnam

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02270

Lateral Reconductor - Eastern - CEMI

Design Alternative CD02270-02

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	0.00%
SubTotal:	$98,038
Contingency Amount:	$0
Estimate:	$98,038
Reimbursement:	$0
Net Amount:	**$98,038**

Description: Reconductor Ross Hill Rd, Putnam with 336 TW, 1,450 feet. $50,000 trimming.

Item Description	CU	[redacted]	Amount
OTHER OTHER estimate per workorder 13234800	23-ALL14		$98,038.00

Associated / Impacted Devices

Status	Type / SysID	Street / Cross St	Structure / Town	Circuit	Map	Cust	Notes
Existing	[redacted]						

East Hampton AWC – Preston Ave, Middletown

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02270

Lateral Reconductor - Eastern - CEMI

Design Alternative CD02270-03

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	20.00%
SubTotal:	$268,274
Contingency Amount:	$53,655
Estimate:	$321,928
Reimbursement:	$0
Net Amount:	**$321,928**

Description: Reconductor Preston Ave, Middletown, with 336 TW, 3,150 feet. $100,000 trimming.

Item Description	CU	[redacted]	Amount
TRAFFIC OH/DB/UG - Traffic Control - Flagger	23-ALL19		$10,000.00
POLE OH - POLE - 1ph (Eversource custodian)	23-OH13		$29,993.60
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge)	23-OH25		$98,280.00
TREE OH - Tree Trimming	23-OH61		$130,000.00

Associated / Impacted Devices

Status	Type / SysID	Street / Cross St	Structure / Town	Circuit	Map	Cust	Notes
Existing	[redacted]						

East Hampton AWC – Goshen Hill Rd, Lebanon

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02270

Lateral Reconductor - Eastern - CEMI

Design Alternative CD02270-04

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	20.00%
SubTotal:	$154,418
Contingency Amount:	$30,884
Estimate:	$185,301
Reimbursement:	$0
Net Amount:	**$185,301**
Description:	Reconductor Goshen Hill Rd, Lebanon, with 336 TW, 2,770 feet. $20,000 trimming.

Item Description	CU	Amount
TRAFFIC OH/DB/UG - Traffic Control - Flagger	23-ALL19	$12,000.00
POLE OH - POLE - 1ph (Eversource custodian)	23-OH13	$29,993.60
OH WIRE OH-Reconductor w/175 Mil Tree Wire-1ph (any gauge)	23-OH25	$86,424.00
TREE OH - Tree Trimming	23-OH61	$26,000.00

[redacted]

Associated / Impacted Devices

Status	Type / SysID	Street / Cross St	Structure / Town	Circuit	Map	Cust	Notes
Existing	[redacted]						

Madison AWC – Saw Mill Hill Rd, Guilford

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02270
Lateral Reconductor - Eastern - CEMI

Design Alternative CD02270-05

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	0.00%
SubTotal:	$52,819
Contingency Amount:	$0
Estimate:	$52,819
Reimbursement:	$0
Net Amount:	**$52,819**

Description: Reconductor Saw Hill Rd with 336 TW, 2,716 feet. $50,000 trimming.

Item Description	CU	[redacted]	Amount
OTHER OTHER estimate per Maximo workorder 13133985	23-ALL14		$52,819.00

Associated / Impacted Devices

Status	Type / SysID	Street / Cross St	Structure / Town	Circuit	Map	Cust	Notes
Existing	[redacted]						

Reliability Projection

Title:

Outage Start Date: 1/1/2019 Outage End Date: 1/1/2023 Years History: 4.00

[redacted]

Madison AWC – Candlewood Hill Rd (Grapevine Rd), Haddam

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02270

Lateral Reconductor - Eastern - CEMI

Design Alternative CD02270-06

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	0.00%
SubTotal:	$34,129
Contingency Amount:	$0
Estimate:	$34,129
Reimbursement:	$0
Net Amount:	**$34,129**

Description: Reconductor Grapevine Rd with 336 TW, 3,345 feet. $50,000 trimming.

Item Description	CU	[redacted]	Amount
OTHER OTHER estimate per Maximo workorder 12782836	23-ALL14		$34,129.00

Associated / Impacted Devices

Status	[redacted]	Notes
Existing		

Reliability Projection

Title:

Outage Start Date: 1/1/2019 Outage End Date: 1/1/2023 Years History: 4.00

[redacted]

New London AWC – Holmes Rd, Montville

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02270

Lateral Reconductor - Eastern - CEMI

Design Alternative CD02270-07

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	0.00%
SubTotal:	$211,000
Contingency Amount:	$0
Estimate:	$211,000
Reimbursement:	$0
Net Amount:	**$211,000**

Description: Reconductor Holmes Rd with 336 TW, 2,769 feet. $50,000 trimming.

Item Description	CU	[redacted]	Amount
OTHER OTHER Estimate per Maximo workorder 13174388	23-ALL14		$211,000.00

Associated / Impacted Devices

Status	Type / SysID	[redacted]	Notes
Existing			

Reliability Projection

Title:

Outage Start Date: 1/1/2019 Outage End Date: 1/1/2023 Years History: 4.00

[redacted]

New London AWC – Long Pond Rd, Ledyard

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02270

Lateral Reconductor - Eastern - CEMI

Design Alternative CD02270-08

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	0.00%
SubTotal:	$114,017
Contingency Amount:	$0
Estimate:	$114,017
Reimbursement:	$0
Net Amount:	**$114,017**

Description: Reconductor sidetap off Lantern Hill Rd with 336 TW, 3411 feet.

Item Description	CU	[redacted]	Amount
OTHER OTHER estimate from Maximo workorder 13324910	23-ALL14		$114,017.00

Associated / Impacted Devices

Status	[redacted]	Notes
Existing		

Reliability Projection

Title:

Outage Start Date: 1/1/2019 Outage End Date: 1/1/2023 Years History: 4.00

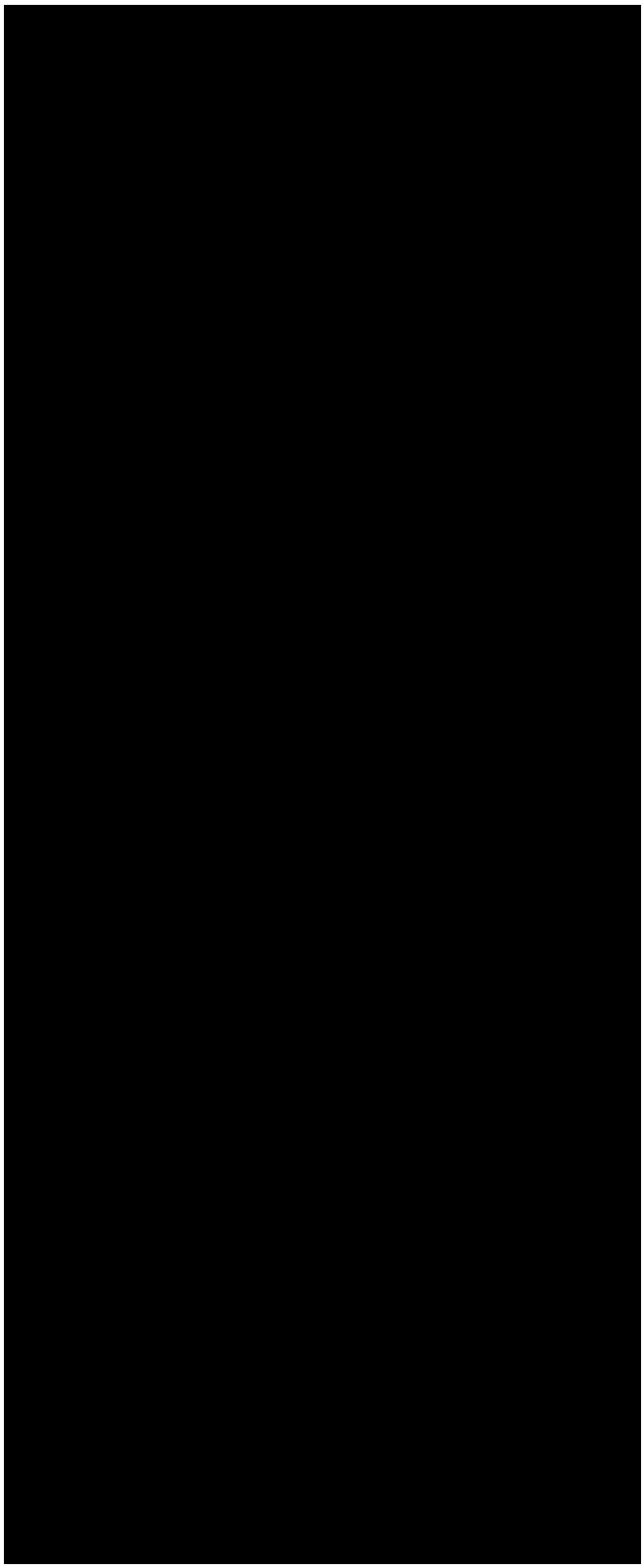
[redacted]

Attachment B – Circuit maps

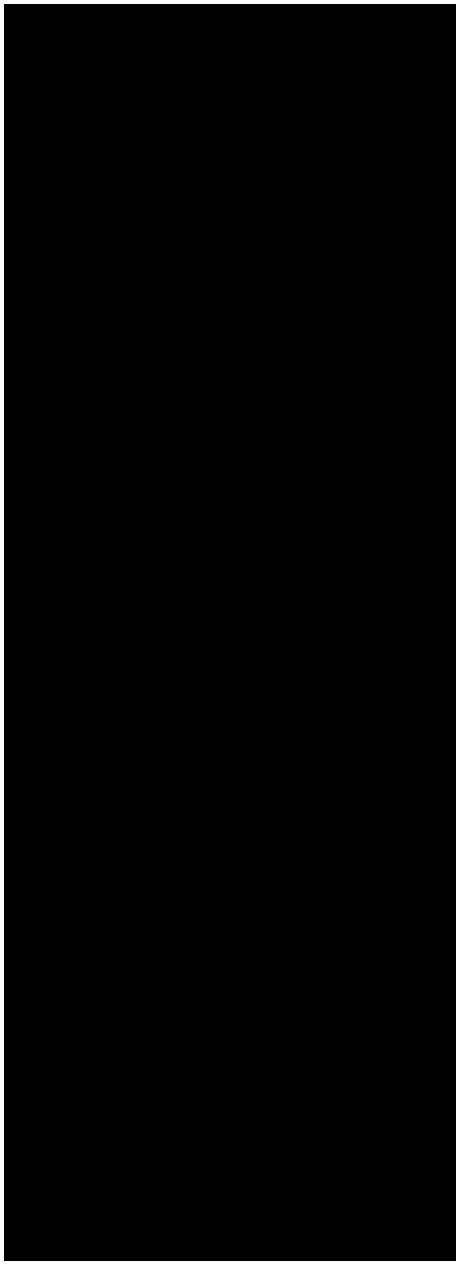
Danielson AWC – Norwich Rd, Plainfield



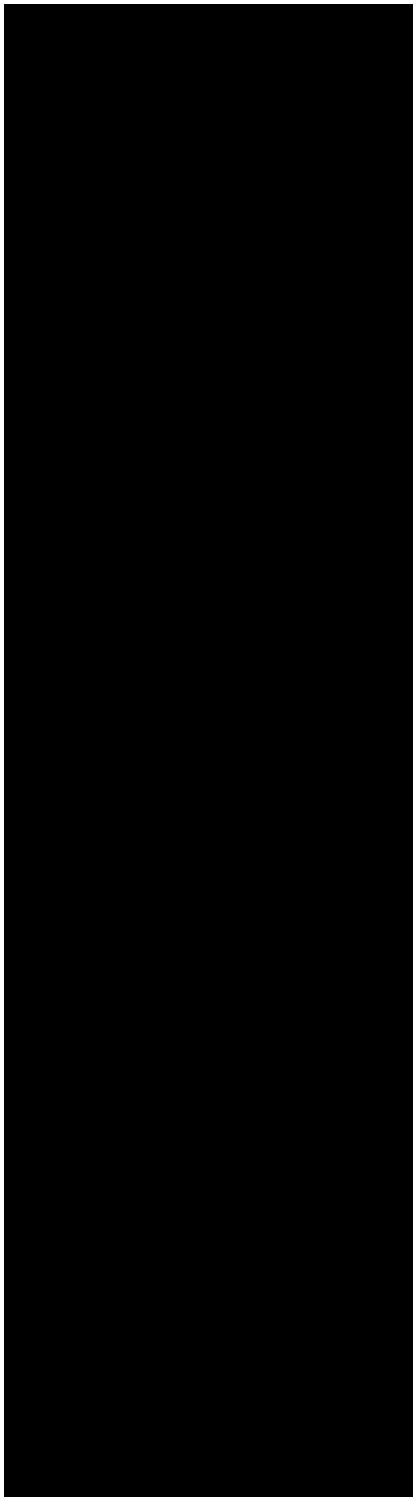
Danielson AWC – Ross Hill Rd, Putnam



East Hampton AWC – Preston Ave, Middletown



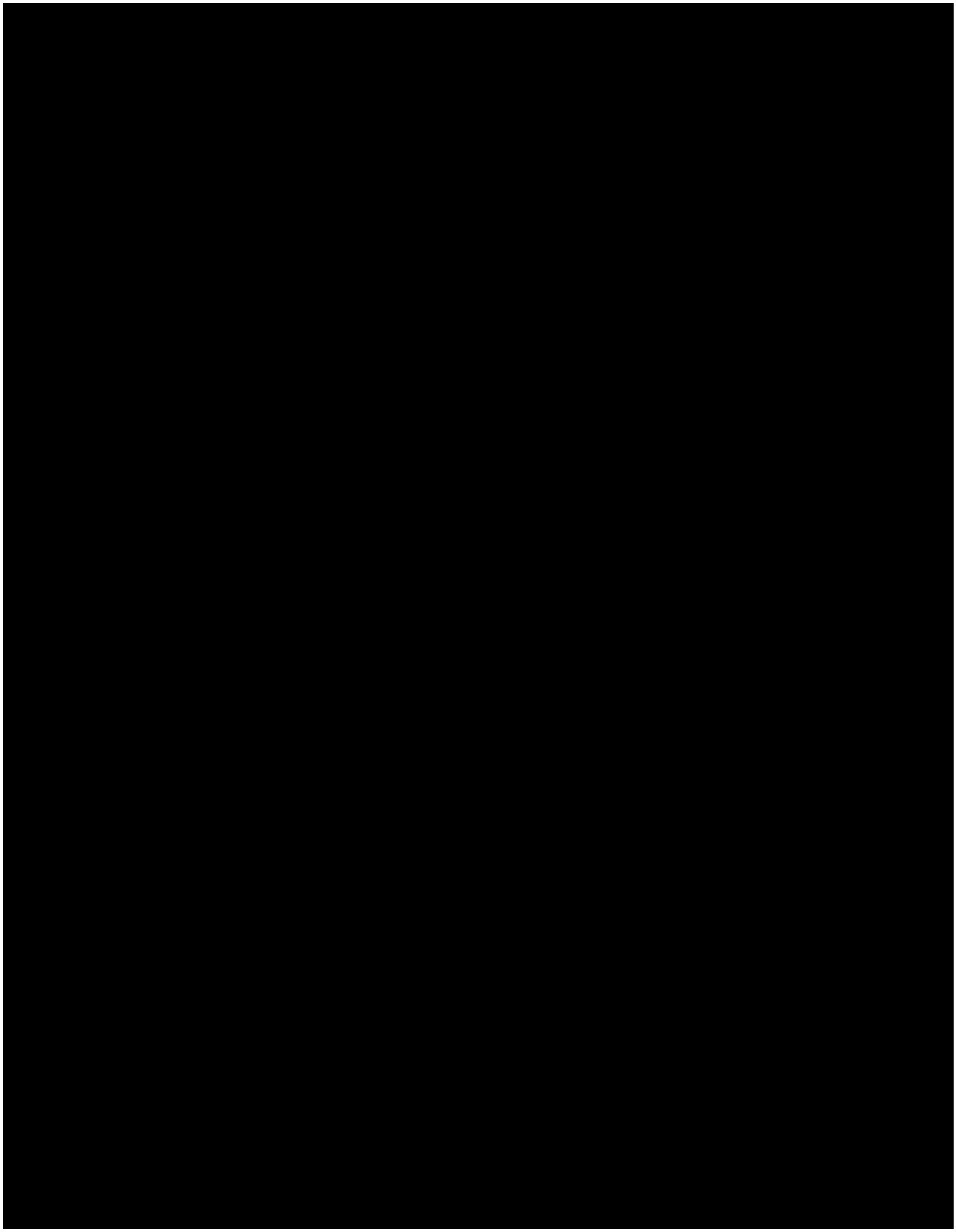
East Hampton AWC – Goshen Hill Rd, Lebanon



Madison AWC – Saw Mill Hill Rd, Guilford

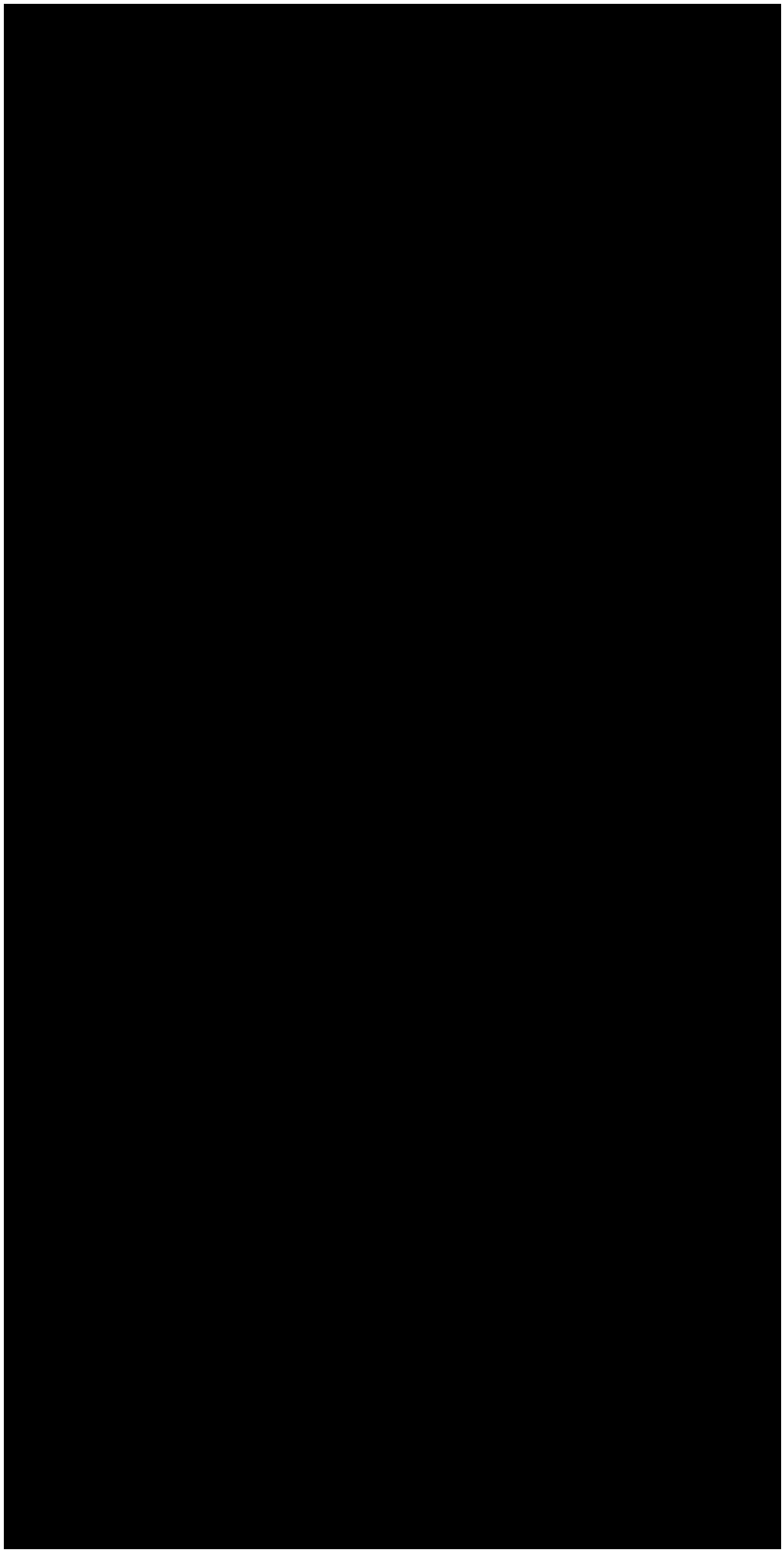


Madison AWC – Grapevine Rd, Haddam





New London AWC – Lantern Hill Rd, Ledyard



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Operations Project Authorization Form

Project Title: Eastern CEMI - Lateral Reconductoring	**Project Number: CD02270**
Date Prepared: 06/29/2023	**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: 12/31/23	**Emergency Related Request?** No
Eng./Constr. Resources Budgeted? Yes	**Facility Type** (check all that apply): ☐ PTF ☐ non-PTF ☒ Distribution
Total Gross Capital Request: 972K	**Authorization Type:** Partial Funding

Executive Summary

[redacted]

EVERSOURCE

Project Costs Summary

Note: Dollar values are in thousands

Capital Costs	Year 2023	Year 2024	Year 2025	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	50.8	0.0	0.0	50.8
Outside Services	344.6	0.0	0.0	344.6
Materials	138.2	0.0	0.0	138.2
Removals	121.6	0.0	0.0	121.6
Risk and Contingency	4.7	0.0	0.0	4.7
Other	0.0	0.0	0.0	0.0
Subtotal – Direct Costs	**659.8**	**0.0**	**0.0**	**659.8**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	292.6	0.0	0.0	292.6
Capitalized interest or AFUDC, if any	19.4	0.0	0.0	19.4
Subtotal – Indirect Costs	**311.9**	**0.0**	**0.0**	**311.9**
Total Gross Capital Costs	**971.8**	**0.0**	**0.0**	**971.8**
Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Total Net Capital Project Costs	**971.8**	**0.0**	**0.0**	**971.8**

Technical Justification:

Project Need, Objective and Justification:

[redacted]

Project Scope:

[redacted]

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Major Material:

100 Eversource poles
19,840 feet – 336 single-phase tree wire

- Plainfield 220 feet 336 TW
- Putnam 1,450 feet 336 TW
- Middletown 3,150 feet 336 TW
- Lebanon 2,770 feet 336 TW
- Guilford 2,720 feet 336 TW
- Haddam 3,350 feet 336 TW
- Ledyard 3,410 feet 336 TW
- East Lyme 2,770 feet 336 TW

Background:

The following devices have experienced multiple interruptions over the last year:

[redacted]

The majority of outages were due to trees:

- Tree caused outage: 28
- Vehicle: 1
- Equipment: 1
- Unknown: 1

[redacted]

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Alternatives Considered:

Were alternative solutions considered/applicable? Include any cost/benefit analysis.

Choose an item.

[redacted]

Regulatory Approvals:

Are Regulatory body approvals needed for the project?

No

If yes, provide detailed regulatory approvals

Project Schedule

Milestone/Phase Name	Estimated Date
100% Engineering Completion	6/30/23
Construction Start	8/1/23
In Service Data	12/31/23

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2023	Medium	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	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach.

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Storm delays	2023	Medium	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.
Technological risks involving integration of new technology	2023	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	2023	Low	Use of mats and specialty equipment, only work during certain times of the year.

References

CD02270_project_needs_statement.pdf

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

Danielson CEMI Laterals.pdf

East Hampton CEMI Laterals.pdf

Madison CEMI Laterals.pdf

New London CEMI Laterals.pdf