EVERSOURCE

Project Approval Form

Project Title: Eversource CT – 2023 Trip Saver Program	**Project Number:** CD02093
Date Prepared: 03/29/2024	**Company:** Eversource CT
Organization: Electric System Operations	**Project Category:** SMART SWITCHES PROGRAM
Project Initiator: [redacted]	**Project Type:** Program Release
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: 12/31/2023	
Total Capital Request: $11,741.3K	**Authorization Type:** Full Funding

1. Executive Summary

Full funding is being requested for this project at a cost of **$11,741.3K** which is 111% of the partial funding capital estimate of $10,561K. Project CD02093 was partially approved in September of 2022. There is no scope change on the project. The increased cost of this project resulted from a lack of arrestors and nomenclature brackets due to them being on backorder when Tripsavers were installed. This led to multiple trips out to locations, which increased the cost of installation after the material was received.

The Original Project was presented as follows:

[redacted]

A Trip Saver is a self–powered, electronically controlled, single–phase, cutout–mounted vacuum interrupter recloser. The Trip Saver is designed to eliminate the sustained interruption that occurs when a lateral fuse cutout operates in response to a transient fault. It also can eliminate momentary circuit interruptions that occur when a substation circuit breaker or source–side line recloser would otherwise trip to prevent a lateral fuse cutout from operating in response to a transient fault.

[redacted]

CD02093 is requesting Preliminary Funding of $10,813K for the Eversource CT Trip Saver Program. There are a total of 983 locations in Connecticut for Trip Saver installations – 91 locations will be done in 2022 and 892 locations in 2023. The average cost per location is estimated at $11,000 and is based on the program's historical costs.

[redacted] *(included in the appendix) will provide the following annual customer interruptions and SAIDI reductions:*

STATE	# Locations	Devices	Sum of CI Saved	Sum of SAIDI Saved
CT	983	1,653	18,955	17.16

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	2022 Actual	2023 Actual	2024 Actual	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	18.3	4.3	0.1	22.6
Outside Services	1,320.0	306.3	3.8	1,630.1
Materials	6,260.1	1,452.5	18.0	7,730.6
Removals	179.0	41.5	5.9	226.4
Risk and Contingency	0.0	0.0	230.2	230.2
Other	4.5	1.1	0.0	5.6
Subtotal – Direct Costs	**7,781.9**	**1,805.6**	**258.0**	**9,845.6**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	966.6	798.1	0.9	1,765.6
Capitalized interest or AFUDC, if any	35.1	94.9	0.1	130.1
Subtotal – Indirect Costs	**1,001.7**	**893.0**	**1.1**	**1,895.7**
Total Gross Capital Costs	**8,783.6**	**2,698.6**	**259.1**	**11,741.3**
Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Total Net Capital Project Costs	**8,783.6**	**2,698.6**	**259.1**	**11,741.3**

Explain unique payment provisions, if applicable:

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

Based on previous year's results, it is projected that the number of permanent outage events and the Customer Minutes Interrupted (CMI) will be reduced by approximately 70% on the fused laterals that are selected.

b. Project Need

Project CD02093 proposes to install [redacted]

The installation of these [redacted] (included in the appendix) will provide the following annual customer interruptions and SAIDI reductions:

[redacted]

c. Project Scope

[redacted]

Major Material:

1653 TripSaver II devices:

65K – 716 units

100K – 654 units

4. Alternatives Considered

Do Nothing: [redacted]

5. Project Schedule

Add any additional milestones that are pertinent to the project

Milestone/Phase Name	Estimated Date
Partial Approval	August 2022
100% Detailed Engineering Completion	October 2022
Fully Funded	April 2024
Construction Start	November 2022
In Service Date	December 2023

6. Regulatory Decisions

N/a

7. Codes and Standards

N/a

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	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.	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.
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
1. DSEM Section 10-43 TripSaver General

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

Attachment	Included in Submittal?
A. Partial Funding PAF File	*YES*
B. Trip Saver Program Documentation	*YES*

C. Cost Estimate	*YES*
D. Trip Saver Standard Sheets	*YES*

Attachment A. Partial Fudning PAF File

Operations Project Authorization Form

Project Title: Eversource CT – 2023 Trip Saver Program	**Project Number:** CD02093
Date Prepared: 08/23/2022	**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:** Program
Project Sponsor: [redacted]	**Capital Investment part of original Operating Plan:** Yes
Estimated in service date: 12/31/2023	**Emergency Related Request?** No
Eng./Constr. Resources Budgeted? Yes	**Facility Type** (check all that apply): ☐ PTF ☐ non-PTF ☒ Distribution
Total Gross Capital Request: $10,561K	**Authorization Type:** Partial Funding

Executive Summary

Project CD02093 proposes to install [redacted] in Connecticut to reduce the number of outages caused by transient type events (Tree, Animal, Lightning, Patrolled Nothing Found).

A Trip Saver is a self–powered, electronically controlled, single–phase, cutout–mounted vacuum

interrupter recloser. The Trip Saver is designed to eliminate the sustained interruption that occurs when a lateral fuse cutout operates in response to a transient fault. It also can eliminate momentary circuit interruptions that occur when a substation circuit breaker or source–side line recloser would otherwise trip to prevent a lateral fuse cutout from operating in response to a transient fault.

Based on previous year's results, it is projected that the number of permanent outage events and the Customer Minutes Interrupted (CMI) will be reduced by approximately 70% on the fused laterals that are selected. (See table in the Background / Justification section of the PAF document.)

CD02093 is requesting Preliminary Funding of $10,813K for the Eversource CT Trip Saver Program. There are a total of 983 locations in Connecticut for Trip Saver installations – 91 locations will be done in 2022 and 892 locations in 2023. The average cost per location is estimated at $11,000 and is based on program historical costs.

The installation of these [redacted] (included in the appendix) will provide the following annual customer interruptions and SAIDI reductions:

[redacted]

Project Costs Summary

Note: Dollar values are in thousands

Capital Costs	2022	2023	2024+	Total
Internal Labor and Construction Equipment	$37	$361	$0	$398
Outside Services	$350	$3,411	$0	$3,761
Materials	$108	$1,057	$0	$1,165
Removals	$56	$546	$0	$602
Risk and Contingency	$48	$466	$0	$513
Other	$0	$0	$0	$0
Subtotal	**$599**	**$5,840**	**$0**	**$6,439**

Indirect Capital Costs	2022	2023	2024+	Total

Indirects/Overheads (including benefits)	$364	$3,546	$0	$3,909
Capitalized interest or AFUDC, if any	$20	$193	$0	$212
Subtotal	**$383**	**$3,738**	**$0**	**$4,122**
Total Capital Costs (Gross)	**$982**	**$9,579**	**$0**	**$10,561**
Less Total Customer Contribution	**$0**	**$0**	**$0**	**$0**
Project Costs (Net)	**$982**	**$9,579**	**$0**	**$10,561**

Technical Justification:

Project Need, Objective and Justification:

Project CD02093 proposes to install [redacted] in Connecticut to reduce the number of outages caused by transient type events (Tree, Animal, Lightning, Patrolled Nothing Found).

The installation of these [redacted] (included in the appendix) will provide the following annual customer interruptions and SAIDI reductions:

[redacted]

Project Scope:

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Major Material:

983 TripSaver II devices:

65K – 716 units

100K – 654 units

140K – 283 units

Background:

Based on previous year's results, it is projected that the number of permanent outage events and the Customer Minutes Interrupted (CMI) will be reduced by approximately 70% on the fused laterals that are selected.

Comparison of August YTD Data for Prior 4 Year Avg vs Post Construction (2019):

[redacted]

Alternatives Considered:

Alternatives were considered (please describe below)

Do Nothing: [redacted]

Regulatory Approvals:

Are Regulatory body approvals needed for the project?

No

Project Schedule

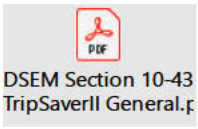
Milestone/Phase Name	Estimated Date
100% Engineering Completion	October 2022
Construction Start	November 2022
In Service Date	December 2023

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.
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.

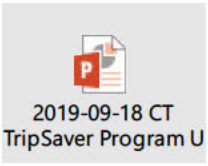
Storm delays	2023	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2023	Low	Schedule work to minimize system abnormal time. Most of this work will require system to be abnormal for any extended period of time.

References


DSEM Section 10-43 TripSaverII General.p

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


CD02093_project_needs_statement.pdf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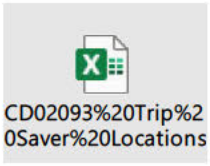
CD02093%20Trip%20Saver%20Locations



[redacted]

C. Cost Estimate

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02093

Eversource CT - 2023 Trip Saver Program

Work Classification

Category: Line
Type: REL1
Type Desc: RELIABILITY IMPROVE SPEC PROJ
Work Type:

Ownership / Management

AWC:
Statewide: Yes
Owner: [redacted]
Manager:

Project Information

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

Budget Summary - Preferred Option

2023 Trip Saver Program

2023

ID	Title	Status	Rev #	Contingency	Expenditure Amount	Net Estimate
1	2023 Trip Saver Program - Central	Prelim	0	0%	$4,697,000	$4,697,000
2	2023 Trip Saver Program - Eastern	Prelim	0	0%	$2,200,000	$2,200,000
3	2023 Trip Saver Program - Western	Prelim	0	0%	$3,894,000	$3,894,000
				2023 Total:	$10,791,000	$10,791,000
				Total Project:	$10,791,000	$10,791,000

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02093

Eversource CT - 2023 Trip Saver Program

Project Option Summary

ID	Description	Segments	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)	Prfrd
O1	2023 Trip Saver Program	1,2,3	$10,791,000	$0	100%	$0.00	$0.00	☑

Segments

ID	Title	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)
1	2023 Trip Saver Program - Central	$4,697,000			$0.00	$0.00
2	2023 Trip Saver Program - Eastern	$2,200,000			$0.00	$0.00
3	2023 Trip Saver Program - Western	$3,894,000			$0.00	$0.00

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02093

Eversource CT - 2023 Trip Saver Program

Background / Scope

Issue:

Project Description:

Other Considerations:

Revision / ACT Comments:

If we don't do this project, what will happen?

Environmental

Water Pollution: No Change Soil Contamination: No Change Natural Habitats: No Change

Alternatives considered based on Environmental Impact or Description of Aspects Oil Spill Risks Considered? ☐

Safety Concerns With This Project? ☐

Explain:

External Stakeholders

Customer Impact / Involvement

Cust. Impacted: Approx. Pole Count (NU):

Crit. Cust. Impacted: Approx. Pole Count (Other):

Adjoining Property Owner Consent Required: ☐ Town Hearing Required: ☐

Other Utility Pole Custodian Area: ☐ Easement Required: ☐

State Highway Permit Required: ☐

Relocation / New Service

New Srvc. Contact: Requestor Type:

Customer Type: State Highway Project #:

Request Number: Route #:

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02093

Eversource CT - 2023 Trip Saver Program

Design Alternative CD02093-01

General Information

Segment: 1 - 2023 Trip Saver Program - Central
Status: Prelim Design Submitted
Segment Type: SECTIONALIZING - OH
Town: CHESHIRE
Budget Year: 2023
Work Type: LT-Sctnlzng-Reclosers
Trimming Required: ☐
In Service Date: 12/31/2023
Description: [redacted]

Itemized Work List

ID	Major Grid	Minor Grid	Description of Work to be Performed

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02093

Eversource CT - 2023 Trip Saver Program

Design Alternative CD02093-01

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	0.00%
SubTotal:	$4,697,000
Contingency Amount:	$0
Estimate:	$4,697,000
Reimbursement:	$0
Net Amount:	**$4,697,000**

Description:

Item Description	CU	[redacted]	Amount
OTHER OTHER 67 locations @ $11,000 per location	16-ALL14		$737,000.00
OTHER OTHER 90 locations @ $11,000 per location	16-ALL14		$990,000.00
OTHER OTHER 90 locations @ $11,000 per location	16-ALL14		$990,000.00
OTHER OTHER 90 locations @ $11,000 per location	16-ALL14		$990,000.00
OTHER OTHER 90 locations at $11,000 per location	16-ALL14		$990,000.00

Associated / Impacted Devices

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

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02093

Eversource CT - 2023 Trip Saver Program

Design Alternative CD02093-01

Reliability Projection

Title:

Outage Start Date: 1/1/2007 Outage End Date: 8/23/2022 Years History: 15.65

[redacted]

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02093

Eversource CT - 2023 Trip Saver Program

Design Alternative CD02093-02

General Information

Segment: 2 - 2023 Trip Saver Program - Eastern
Status: Prelim Design Submitted
Segment Type: SECTIONALIZING - OH
Town: MIDDLETOWN
Budget Year: 2023
Work Type: LT-Sctnlzng-Reclosers
Trimming Required: ☐
In Service Date: 12/31/2023
Description: [redacted]

Itemized Work List

ID	Major Grid	Minor Grid	Description of Work to be Performed

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02093

Eversource CT - 2023 Trip Saver Program

Design Alternative CD02093-02

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	0.00%
SubTotal:	$2,200,000
Contingency Amount:	$0
Estimate:	$2,200,000
Reimbursement:	$0
Net Amount:	**$2,200,000**

Description:

Item Description	CU	[redacted]	Amount
OTHER OTHER 20 locations @ $11,000 per location	16-ALL14		$220,000.00
OTHER OTHER 90 locations @ $11,000 per location	16-ALL14		$990,000.00
OTHER OTHER 90 locations @ $11,000 per location	16-ALL14		$990,000.00

Associated / Impacted Devices

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

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02093

Eversource CT - 2023 Trip Saver Program

Design Alternative CD02093-02

Reliability Projection

Title:

Outage Start Date: 1/1/2007 Outage End Date: 8/23/2022 Years History: 15.65

[redacted]

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02093

Eversource CT - 2023 Trip Saver Program

Design Alternative CD02093-03

General Information

Segment: 3 - 2023 Trip Saver Program - Western
Status: Prelim Design Submitted
Segment Type: SECTIONALIZING - OH
Town: NEWTOWN
Budget Year: 2023
Work Type: BB-Sctnlzng-Reclosers
Trimming Required: ☐
In Service Date: 12/31/2023
Description: [redacted]

Itemized Work List

ID	Major Grid	Minor Grid	Description of Work to be Performed

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02093

Eversource CT - 2023 Trip Saver Program

Design Alternative CD02093-03

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	0.00%
SubTotal:	$3,894,000
Contingency Amount:	$0
Estimate:	$3,894,000
Reimbursement:	$0
Net Amount:	**$3,894,000**

Description:

Item Description	CU	[redacted]	Amount
OTHER OTHER 84 locations @ $11,000 per location	16-ALL14		$924,000.00
OTHER OTHER 90 locations @ $11,000 per location	16-ALL14		$990,000.00
OTHER OTHER 90 locations @ $11,000 per location	16-ALL14		$990,000.00
OTHER OTHER 90 locations @ $11,000 per location	16-ALL14		$990,000.00

Associated / Impacted Devices

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

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD02093

Eversource CT - 2023 Trip Saver Program

Design Alternative CD02093-03

Reliability Projection

Title:

Outage Start Date: 1/1/2007 Outage End Date: 8/23/2022 Years History: 15.65

[redacted]

[redacted]

Protection Section 10.43	TripSaver II General	10.432

