EVERSOURCE

Project Approval Form

Project Title: CD02717 Eastern Tripsaver Optimization	Project Number: CD02717
Date Prepared: 07/18/2025	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** SMART SWITCHES PROGRAM
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: 12/31/2025	**NWS Excludable:** ☒ Yes ☐ No
Total Capital Request: $641.5K	**Authorization Type:** Full Funding

1. Executive Summary

Full funding is being requested for $641.5K, which is 87% of the partial funding request amount of $738.5K. 4 of the 59 locations were removed from the scope of work due to the locations in the field already being updated to acceptable engineering standards.

This project was created to address TripSaver locations where the minimum load requirement is not met year-round. Minimum load is required in order for TripSavers to operate properly in response to fault conditions. Each TripSaver location in this project has been identified as a unit not meeting the minimum load requirement and, consequently, requires a replacement sectionalizing device in its place. For the Eastern Division, it is a total of 55 locations.

Division: Eastern
District(s): Danielson, East Hampton, Madison, New London AWCs
Town(s): Brooklyn, Chaplin, Chester, Columbia, Deep River, East Haddam, Eastford, Haddam, Killingly, Killingworth, Lebanon, Mansfield, Middletown, Montville, Old Saybrook, Plainfield, Pomfret, Scotland, Thompson, Voluntown, Windham, Woodstock

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	2025	2026	2027	Total
Internal Labor and Construction Equipment	54.3	0.0	0.0	54.3
Outside Services	3.2	0.0	0.0	3.2
Materials	246.7	0.0	0.0	246.7
Removals	8.5	0.0	0.0	8.5
Risk and Contingency	58.3	0.0	0.0	58.3
Other	0.0	0.0	0.0	0.0
Subtotal	**371.1**	**0.0**	**0.0**	**371.1**

Indirect Capital Costs	2025	2026	2027	Total
Indirects/Overheads (including benefits)	270.4	0.0	0.0	270.4
Capitalized interest or AFUDC, if any	0.0	0.0	0.0	0.0
Subtotal	**270.4**	**0.0**	**0.0**	**270.4**
Total Capital Costs (Gross)	**641.5**	**0.0**	**0.0**	**641.5**
Less Total Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Project Costs (Net of Reimbursement)	**641.5**	**0.0**	**0.0**	**641.5**

Explain unique payment provisions, if applicable:

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

A TripSaver is a self−powered, electronically controlled, single−phase, cutout−mounted vacuum, interrupter recloser. The TripSaver 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.

For TripSavers without adequate charge upon receiving fault, they will operate but will fail to reclose. Internally, the mechanism will open but there will be no visual indication where the TripSaver drops out of the cutout body. In some cases, this lack of charge can also cause a delay in operation which may cause miscoordination with upstream devices.

b. Project Need

This project is required as the 55 locations outlined do not meet the minimum loading requirement. The minimum load requirement, or the “power on” threshold, can be cited in sections 8.0 – 8.6 of WMS 09.10-234 – Operation Instruction for the S&C TripSaver II:

8.0 TripSaver II Sleep Mode

8.1 If the TripSaver II does not see enough load current for a prolonged period, the unit will enter a “sleep mode” to conserve power. Each body size has a “stay on” threshold; 0.5A for 40A units, 1.5A for 100A units, and 3A for 200A units.

8.2 Additionally, each body size has a “power on” load current in which the device will wake from sleep mode. 1A for 40A units, 4A for 100A units, and 8A for 200A units.

8.3 The TripSaver II will also go into sleep mode 5 – 10 seconds after being disconnected from the load or any external power.

8.4 While in sleep mode, the display will lock itself on the last screen that was being displayed when the unit went into sleep mode, but the unit itself will continue to operate normally.

8.5 If a device is in the sleep mode, operating the mode selector handle will not wake up the unit, but it will function normally per the handle position (NR or AUTO). If needed, the TripSaver II can be woken up by using either the cordless power module (can be done via hotstick if the TripSaver II is on the pole) or using the plug-in power module.

8.6 Please note that in the unlikely case that a TripSaver II has not seen the minimum required load current (wake up & stay on) for a period of 18 hours (non-consecutive) over a 6-month period, it is possible that the device will not perform the reclose functions properly. In this situation the tripping functions will still operate normally, but the unit will likely need to be reset prior to being put back in service. If a TripSaver II is found in this condition, notify Engineering. A load analysis should be conducted to verify the minimum amperage is available per size of the TripSaver II model.

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c. Project Scope

This project proposes one option, Option 1, as the preferred option. This option looks to replace these TripSaver locations with sectionalizing units that are better suited for the load present. The scope of Option 1 is as follows:

AWC	Town(s)	WOs
Danielson	BROOKLYN	2
	CHAPLIN	1
	EASTFORD	2
	KILLINGLY	1
	MANSFIELD	1
	PLAINFIELD	2
	POMFRET	1
	SCOTLAND	4
	THOMPSON	1
	VOLUNTOWN	1
	WOODSTOCK	7
East Hampton	COLUMBIA	1
	EAST HADDAM	10
	LEBANON	2
	MARLBOROUGH	0
	MIDDLETOWN	2
	WINDHAM	1
Madison	CHESTER	1
	DEEP RIVER	1
	HADDAM	5
	KILLINGWORTH	7
	OLD SAYBROOK	1
New London	MONTVILLE	1

For more details on each location, see the Attachment section.

As described in section 8.1, each TripSaver location in this project do not meet the “power on” threshold. Per section 8.6, it is possible that these TripSavers will not operate as intended due to this unmet requirement.

TripSaver Body Size	“Stay On” Threshold	“Power On” Load
40A	0.5A	1A
100A	1.5A	4A
200A	3.0A	8A

Figure 1: TripSaver Loading Requirements

Major Materials:

- 1ph TripSaver Locations: 19
- 3ph TripSaver Locations: 10
- Locations reverting to fuses: 26

Qty	Size	Body	Stock Code (as of 6/2025)
4	**25K**	**40A**	620630
	25K	**100A**	620612
7	**40K**	**40A**	622560
	40K	**100A**	620609
7	**65K**	**40A**	622559
	65K	**100A**	620607
	80K	**40A**	622558
	80K	**100A**	622467
	80K	**200A**	620606
28	**100K**	**40A**	622557
4	**100K**	**100A**	622468
	100K	**200A**	620605
	140K	**100A**	622764
	140K	**200A**	620603
50			

4. Alternatives Considered

☐ Project Cost < $250k	☐ New Service
☐ CDOT Relocation	☐ Generator Interconnection Project
☒ Maintenance, Asset Condition, or Safety Related*	

This project supports the asset replacement and maintenance of TripSaver locations therefore, it is NWS excludable.

Design Criteria	Option
	1 – Eastern TripSaver Optimization
Required to meet project need	
Optimizes locations with proper sectionalizing devices	X
Authorization Type	Partial
Capital Cost	$641.5K
Expense Cost	$28.1K
Total Cost	$669.6K
Total Cost / MVA Added	N/A
Total Cost / CM Saved	N/A
Total Cost / CI Saved	N/A
Preferred Option	**X**

Doing nothing here is not recommended as these TripSavers along these laterals may not operate as intended during a fault. This puts not only the customers on this lateral at risk of an outage but, it can potentially increase the quantity of outages by tripping another upstream device should the TripSaver fail to operate. This would increase outage exposure greatly and adversely affect more customers.

5. Project Schedule

Add any additional milestones that are pertinent to the project

Milestone/Phase Name	Estimated Date
Partial Approval	June 19, 2025
100% Detailed Engineering Completion	October 31, 2025
Fully Funded	November 7, 2025
Construction Start	November 10, 2025
In Service Date	December 31, 2025

6. Regulatory Decisions

n/a

7. Codes and Standards

Codes and Standards
1. DSEM 06.713 – Overhead System Protection & Design Philosophy
2. DSEM 10.431 – TripSaver II General
3. WMS 09.10-234 – Operation Instruction for the S&C TripSaver II

8. Risk and Contingencies

Contingencies:

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2026	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	2026	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach.
Internal construction resources not available to perform the work.	2026	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.	2026	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2026	Low	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2026	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2026	Low	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.
Wetlands / Environmentally sensitive area	2026	Low	Use of mats and specialty equipment, only work during certain times of the year.

9. References

References
1.
2.
3.
4.

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

Attachment	Included in Submittal?
A. Cost Estimates	*YES*
B. TripSaver Replacement Locations	*YES*
C. Partial Funding PAF	*YES*

Attachment - A: Cost Estimates

Design Alternative CD02717-01

Estimate

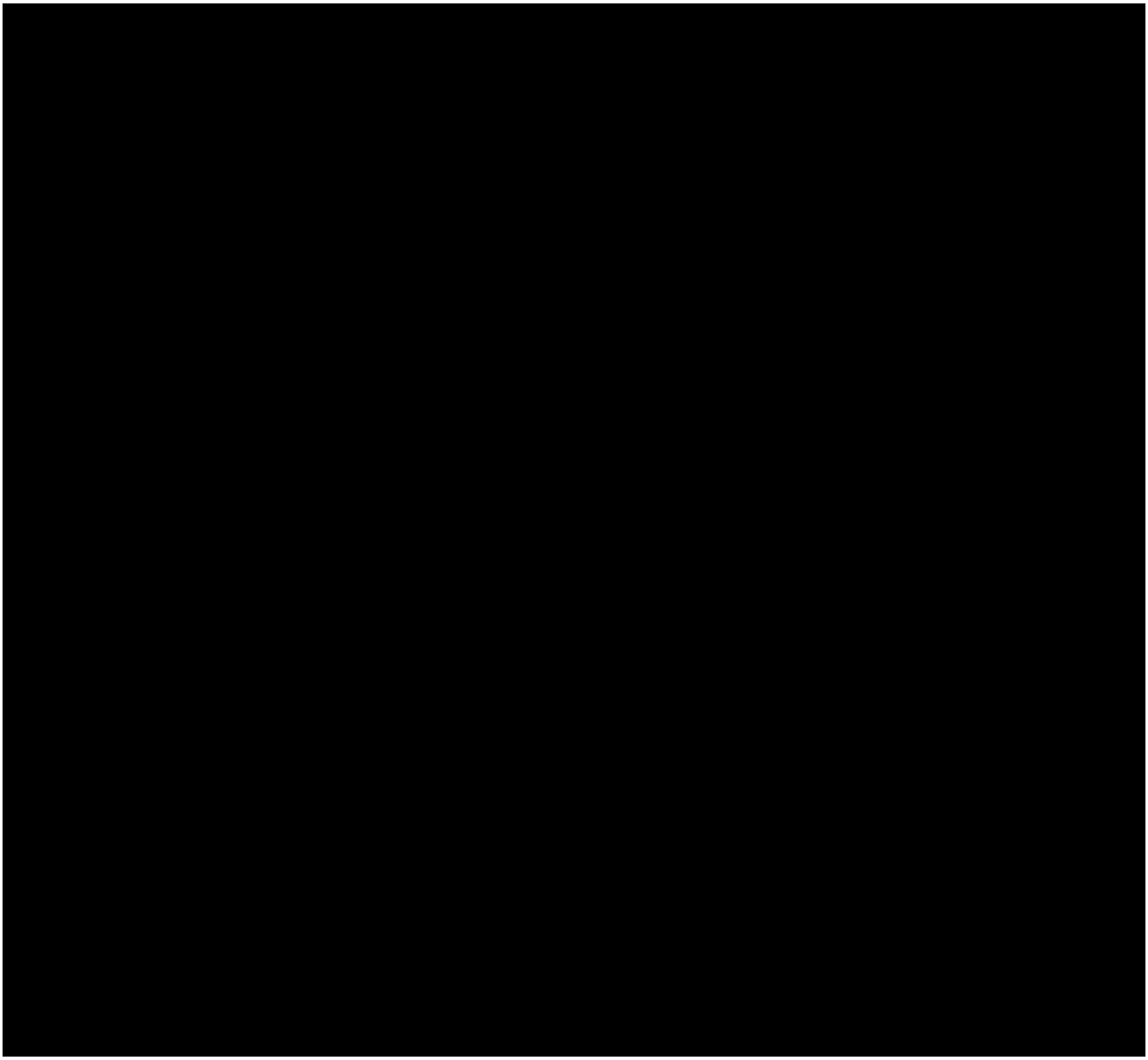
Preliminary Estimate Summary

Revision Number:	0
Contingency:	24.00%
SubTotal:	$621,652
Contingency Amount:	$149,197
Estimate:	$770,849
Reimbursement:	$0
Net Amount:	**$770,849**
Description:	

Item Description	CU	[redacted]	Amount
SECTIONALIZE OH - Cutouts or Arresters - 1ph 1ph fuse changes	23-OH19		$32,086.08
SECTIONALIZE 1PH Tripsaver 1ph TripSaver	23-OH41A		$160,000.00
OTHER OTHER 30% contractor adder ($478,195*0.3)	23-ALL14		$143,459.00
SECTIONALIZE OH - Cutouts or Arresters - 3ph 3ph fuse changes	23-OH20		$33,107.36
SECTIONALIZE 3PH Tripsaver 3ph TripSaver	23-OH41B		$253,000.00

Figure 2: Cost Estimates – Option 1 (preferred)

Attachment - B: TripSaver Replacement Locations*



EVERSOURCE

Project Approval Form

Attachment - C Partial Funding PAF

Project Title: Eastern TripSaver Optimization	**Project Number:** CD02717
Date Prepared: 06/19/2025	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** SMART SWITCHES PROGRAM
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: 12/31/2026	**NWS Excludable:** ☒ Yes ☐ No
Total Capital Request: $738.5K	**Authorization Type:** Partial Funding

11. Executive Summary

This project was created to address TripSaver locations where the minimum load requirement is not met year-round. Minimum load is required in order for TripSavers to operate properly in response to fault conditions. Each TripSaver location in this project has been identified as a unit not meeting the minimum load requirement and, consequently, requires a replacement sectionalizing device in its place. For the Eastern Division, it is a total of 59 locations.

Division: Eastern
District(s): Danielson, East Hampton, Madison, New London AWCs
Town(s): Brooklyn, Chaplin, Chester, Columbia, Deep River, East Haddam, Eastford, Haddam, Killingly, Killingworth, Lebanon, Mansfield, Marlborough, Middletown, Montville, Old Saybrook, Plainfield, Pomfret, Scotland, Thompson, Voluntown, Windham, Woodstock

12. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	Year 2026	Year 2027	Year 2028+	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	40.3	0.0	0.0	40.3
Outside Services	82.6	0.0	0.0	82.6
Materials	383.4	0.0	0.0	383.4
Removals	44.1	0.0	0.0	44.1
Other	1.9	0.0	0.0	1.9
Risk and Contingency	0.0	0.0	0.0	0.0
Subtotal – Direct Costs	**552.3**	**0.0**	**0.0**	**552.3**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	177.4	0.0	0.0	177.4
Capitalized interest or AFUDC, if any	8.7	0.0	0.0	8.7
Subtotal – Indirect Costs	**186.2**	**0.0**	**0.0**	**186.2**
Total Gross Capital Costs	**738.5**	**0.0**	**0.0**	**738.5**
Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Total Net Capital Project Costs	**738.5**	**0.0**	**0.0**	**738.5**

13. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

A TripSaver is a self−powered, electronically controlled, single−phase, cutout−mounted vacuum, interrupter recloser. The TripSaver 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.

For TripSavers without adequate charge upon receiving fault, they will operate but will fail to reclose. Internally, the mechanism will open but there will be no visual indication where the TripSaver drops out of the cutout body. In some cases, this lack of charge can also cause a delay in operation which may cause miscoordination with upstream devices.

b. Project Need

This project is required as the 18 locations outlined do not meet the minimum loading requirement. The minimum load requirement, or the “power on” threshold, can be cited in sections 8.0 – 8.6 of WMS 09.10-234 – Operation Instruction for the S&C TripSaver II:

8.0 TripSaver II Sleep Mode

8.1 If the TripSaver II does not see enough load current for a prolonged period, the unit will enter a “sleep mode” to conserve power. Each body size has a “stay on” threshold; 0.5A for 40A units, 1.5A for 100A units, and 3A for 200A units.

8.2 Additionally, each body size has a “power on” load current in which the device will wake from sleep mode. 1A for 40A units, 4A for 100A units, and 8A for 200A units.

8.3 The TripSaver II will also go into sleep mode 5 – 10 seconds after being disconnected from the load or any external power.

8.4 While in sleep mode, the display will lock itself on the last screen that was being displayed when the unit went into sleep mode, but the unit itself will continue to operate normally.

8.5 If a device is in the sleep mode, operating the mode selector handle will not wake up the unit, but it will function normally per the handle position (NR or AUTO). If needed, the TripSaver II can be woken up by using either the cordless power module (can be done via hotstick if the TripSaver II is on the pole) or using the plug-in power module.

8.6 Please note that in the unlikely case that a TripSaver II has not seen the minimum required load current (wake up & stay on) for a period of 18 hours (non-consecutive) over a 6-month period, it is possible that the device will not perform the reclose functions properly. In this situation the tripping functions will still operate normally, but the unit will likely need to be reset prior to being put back in service. If a TripSaver II is found in this condition, notify Engineering. A load analysis should be conducted to verify the minimum amperage is available per size of the TripSaver II model.

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As described in section 8.1, each TripSaver location in this project do not meet the “power on” threshold. Per section 8.6, it is possible that these TripSavers will not operate as intended due to this unmet requirement.

TripSaver Body Size	“Stay On” Threshold	“Power On” Load
40A	0.5A	1A
100A	1.5A	4A
200A	3.0A	8A

Figure 1: TripSaver Loading Requirements

c. Project Scope

This project proposes one option, Option 1, as the preferred option. This option looks to replace these TripSaver locations with sectionalizing units that are better suited for the load present. The scope of Option 1 is as follows:

AWC	Town(s)	WOs
Danielson	BROOKLYN	2
	CHAPLIN	1
	EASTFORD	2
	KILLINGLY	1
	MANSFIELD	1
	PLAINFIELD	2
	POMFRET	1
	SCOTLAND	5
	THOMPSON	1
	VOLUNTOWN	1
	WOODSTOCK	8
East Hampton	COLUMBIA	1
	EAST HADDAM	10
	LEBANON	3
	MARLBOROUGH	1
	MIDDLETOWN	2
	WINDHAM	1
Madison	CHESTER	1
	DEEP RIVER	1
	HADDAM	5
	KILLINGWORTH	7
	OLD SAYBROOK	1
New London	MONTVILLE	1

For more details on each location, see the Attachment section.

Major Materials:

- 1ph TripSaver Locations: 20
- 3ph TripSaver Locations: 11

Qty	Size	Body	Stock Code (as of 6/2025)
4	**25K**	**40A**	620630
	25K	**100A**	620612
7	**40K**	**40A**	622560
	40K	**100A**	620609
7	**65K**	**40A**	622559
	65K	**100A**	620607
	80K	**40A**	622558
	80K	**100A**	622467
	80K	**200A**	620606
31	**100K**	**40A**	622557
4	**100K**	**100A**	622468
	100K	**200A**	620605
	140K	**100A**	622764
	140K	**200A**	620603
53			

14. Alternatives Considered

NWS Exclusion Criteria (select all that apply)

☐ Project Cost < $250k	☐ New Service
☐ CDOT Relocation	☐ Generator Interconnection Project
☒ Maintenance, Asset Condition, or Safety Related*	

This project supports the asset replacement and maintenance of TripSaver locations therefore, it is NWS excludable.

Design Criteria	Option
	1 – Eastern TripSaver Optimization
Required to meet project need	
Optimizes locations with proper sectionalizing devices	X
Authorization Type	Partial
Capital Cost	$738,492
Expense Cost	$32,357
Total Cost	$770,849
Total Cost / MVA Added	N/A
Total Cost / CM Saved	N/A
Total Cost / CI Saved	N/A
Preferred Option	**X**

Doing nothing here is not recommended as these TripSavers along these laterals may not operate as intended during a fault. This puts not only the customers on this lateral at risk of an outage but, it can potentially increase the quantity of outages by tripping another upstream device should the TripSaver fail to operate. This would increase outage exposure greatly and adversely affect more customers.

15. Project Schedule

Milestone/Phase Name	Estimated Date
Partial Approval	June 19, 2025
100% Detailed Engineering Completion	August 29, 2025
Fully Funded	November 20, 2025
Construction Start	February 2, 2026
Project Completion	December 31, 2026

16. Regulatory Decisions

N/A

17. Codes and Standards

Codes and Standards
4. DSEM 06.713 – Overhead System Protection & Design Philosophy
5. DSEM 10.431 – TripSaver II General
6. WMS 09.10-234 – Operation Instruction for the S&C TripSaver II

18. Risk and Contingencies

Contingencies: 24% contingency was added for 2026 work. This contingency accounts for any risks that are unknown and do not have mitigation plans.

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2026	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	2026	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach.
Internal construction resources not available to perform the work.	2026	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.	2026	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2026	Low	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2026	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2026	Low	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.
Wetlands / Environmentally sensitive area	2026	Low	Use of mats and specialty equipment, only work during certain times of the year.

19. References

References
1.

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

Attachment	Included in Submittal?
A. Cost Estimates	*YES*
B. TripSaver Replacement Locations	*YES*
C. Initial Funding PAF	*YES*

Attachment - A: Cost Estimates

Design Alternative CD02717-01

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	24.00%
SubTotal:	$621,652
Contingency Amount:	$149,197
Estimate:	$770,849
Reimbursement:	$0
Net Amount:	**$770,849**
Description:	

Item Description	CU	[redacted]	Amount
SECTIONALIZE OH - Cutouts or Arresters - 1ph 1ph fuse changes	23-OH19		$32,086.08
SECTIONALIZE 1PH Tripsaver 1ph TripSaver	23-OH41A		$160,000.00
OTHER OTHER 30% contractor adder ($478,195*0.3)	23-ALL14		$143,459.00
SECTIONALIZE OH - Cutouts or Arresters - 3ph 3ph fuse changes	23-OH20		$33,107.36
SECTIONALIZE 3PH Tripsaver 3ph TripSaver	23-OH41B		$253,000.00

Figure 2: Cost Estimates – Option 1 (preferred)

Attachment - B: TripSaver Replacement Locations*

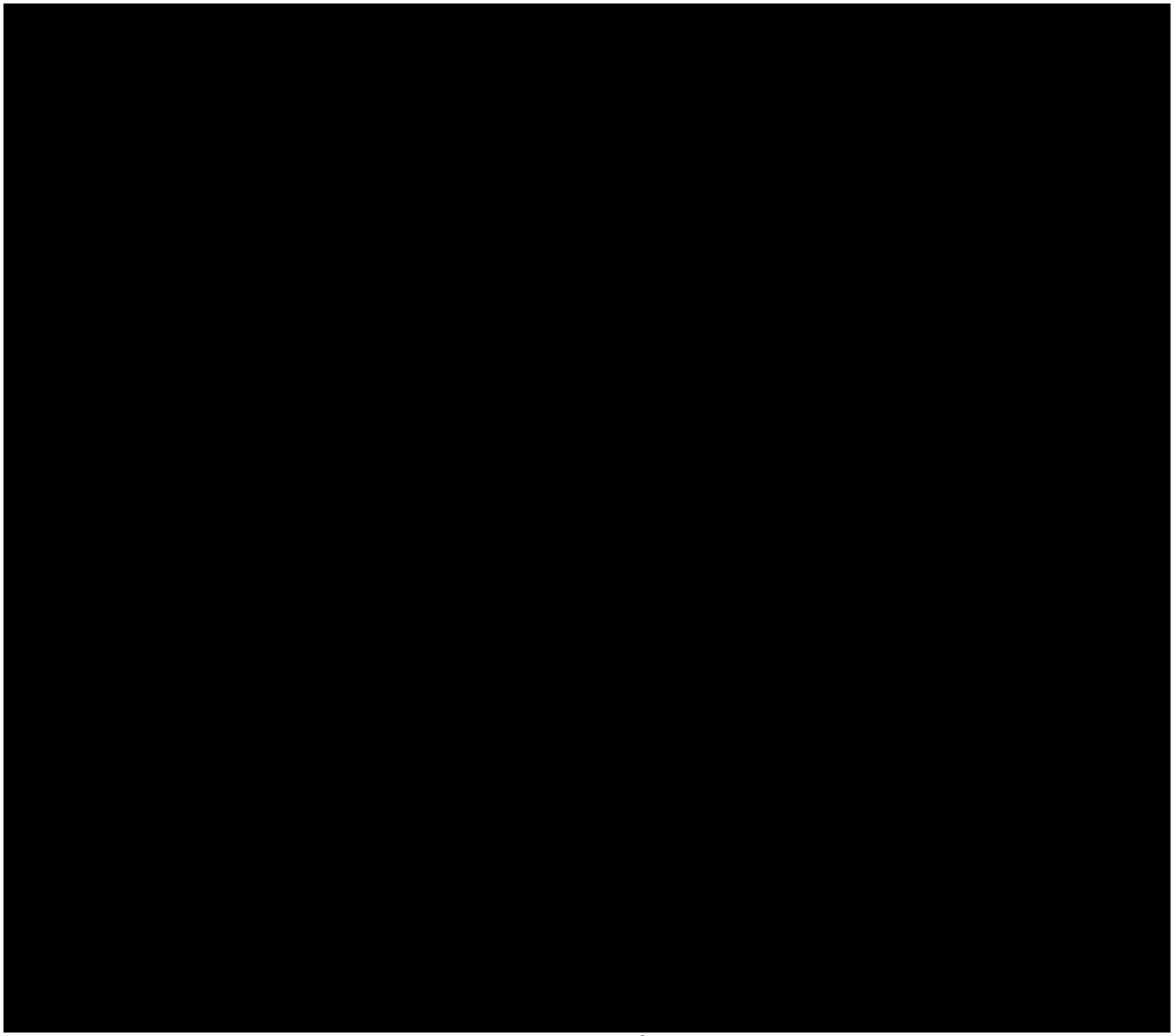

Figure 3: Eastern TripSaver Replacement Locations

*Locations are subject to change based on field conditions and other variables between now and construction

Attachment - C: Initial Funding PAF

EVERSOURCE

Project Approval Form

Project Title: Eastern TripSaver Optimization	**Project Number: CD02717**
Date Prepared: 06/12/2025	**Company:** Eversource CT
Organization: Distribution Engineering	**Class(es) of Plant:** D Line
Project Initiator: [redacted]	**Project Category:** SMART SWITCHES PROGRAM
Project Manager	**Project Type:** Specific
Project Sponsor:	**Capital Investment part of 5-year plan?** No
	Emergency Related Request? No
Total Request ($): 30K	**Authorization Type:** Initial Funding

1. Project Need Statement

Project CD02717 was established to address TripSavers across the Eastern Division that are not meeting the minimum load requirements in order to operate as intended year-round.

Title: **Eastern TripSaver Optimization**
Division: Eastern

2. Project Objectives

The objective for this project is to replace those TripSaver locations where the minimum load requirement is not met. These TripSavers will be replaced with more suitable sectionalizing devices consisting of TripSavers with lower minimum load requirements or with fuse links. This initial funding request is to investigate methods to perform and complete the objective above. The initial requested amount is $30,000.

Project Initiator: [redacted]

Engineering Approval: _____