Operations Project Authorization Form

Date Prepared: 04-28-2021	**Project Title: TDRP 2020 –** [redacted]
Company/ies: Eversource CT	**Project ID Number:CD01685**
Organization: Distribution Electric	**Class(es) of Plant: Distribution**
Project Initiator: [redacted]	**Project Category: Line**
Project Manager: [redacted]	**Project Type: TDRP**
Project Sponsor: [redacted]	**Project Purpose: Reliability Improvement Spec**
Estimated in service date: 12/31/2022	**If Transmission Project: PTF? N/A**
Eng. /Constr. Resources Budgeted? Y	**Capital Investment Part of Original Operating Plan? Y**
Authorization Type: Preliminary	**O&M Expenses Part of the Original Operating Plan? Y**
Total Request: $320K	

Financial Requirements:

Project Authorization

ERM: _____

FP&A: _____

Executive Summary

Eversource Transmission-Distribution Reliability Performance (TDRP) Projects address reliability issues associated with the Worst Performing Top 100 Circuits in Connecticut. In doing so, Eversource maintains compliance with PURA Docket 86-12-03. Eversource is required to report the status of the actions taken to improve performance for each circuit topping the "Worst 100" list. Updates are required each year consecutively for a total of four years following a circuit's appearance on the list.

In 2020, the [redacted] was ranked 17th due to tree related outages. Several segments were identified to mitigate the tree issues. The preferred option is estimated to cost $320K saving $0.98/CM and consists of segments 1,2,10 and 11.

[redacted]

- The areas that did not warrant a rebuild at this time, will be monitored and given to Vegetation Management to identify and address any danger trees.

Project Costs Summary

Note: Dollar values are in thousands

	Prior Authorized	2022	2023	2024	Totals
Capital Additions - Direct	$0	$182	$0	$0	$182
Less Customer Contribution	$0	$0	$0	$0	$0
Removals net of Salvage ____%	$0	$17	$0	$0	$17
Total - Direct Spending	$0	$199	$0	$0	$199
Capital Additions - Indirect	$0	$108	$0	$0	$108
Subtotal Request	$0	$308	$0	$0	$308
AFUDC	$0	$2	$0	$0	$2
Total Capital Request	$0	$310	$0	$0	$310
O&M	$0	$10	$0	$0	$10
Total Request	$0	$320	$0	$0	$320

Financial Evaluation

Note: Dollar values are in thousands

Direct Capital Costs	Year 1	Year 2	Year 3+	Total
Straight Time Labor	$14	$0	$0	$14
Overtime Labor	$2	$0	$0	$2
Outside Services	$136	$0	$0	$136
Materials	$47	$0	$0	$47
Other, including contingency amounts (describe)	$1	$0	$0	$1
Total Direct Costs	**$199**	**$0**	**$0**	**$199**

Indirect Capital Costs	Year 1	Year 2	Year 3+	Total
Indirects/Overheads (including benefits)	$108	$0	$0	$108
Capitalized interest or AFUDC, if any	$2	$0	$0	$2
Total Indirect Costs	**$111**	**$0**	**$0**	**$111**
Total Capital Costs	**$310**	**$0**	**$0**	**$310**
Less Total Customer Contribution	**$0**	**$0**	**$0**	**$0**
Total Capital Project Costs	**$310**	**$0**	**$0**	**$310**
Total O&M Project Costs	**$10**	**$0**	**$0**	**$10**

Total Project Cost	**$ 320**	**$ -**	**$ -**	**$ 320**

Technical Justification (See Reliability Table):

[redacted]

Project Objectives

To improve the reliability of the [redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]

Major Material:

- 3,000ft of 1/0 175mil Tree Wire
- Two Three Phase Reclosers
- One Triple Single Recloser

Background / Justification

[redacted] was last trimmed in 2019 and is scheduled to be trimmed in 2023 (see mapping of trimming history).

See CD01385 reliability by device for details (attached)

Segment	SEQ	Row Labels	Cum Count on Device	Count of Device	Sum of Customer Minutes	Customer Affected	% cust affected	% CM
	2	[redacted]	3	3	712,038	[redacted]	6%	15%
2	2A		8	5	732,982		5%	6%
	2B		9	1	293,360		2%	1%
3	2B1		17	8	397,045		2%	3%
	2C		18	1	222,816		2%	1%
4	2C1		24	6	237,600		1%	2%
4	2D		31	7	223,766		1%	2%
	3		5	2	170,517		5%	1%
	4		9	4	357,431		3%	7%
9 & 12	4A		16	7	475,695		5%	4%
	4B		22	5	98,650		0%	1%
5 or 10	4A1		23	7	885,310		3%	7%
6	4A1A		32	9	558,432		2%	5%
7	4A1A1		42	10	179,980		1%	1%
11	5		26	9	201,404		2%	2%
1	6		6	3	2,223,107		18%	7%
	6A		10	4	213,877		2%	0%

Business Process and / or Technical Improvements:

Improving the reliability of [redacted] Circuit.

Alternatives/Segments Considered:

The following segments were not selected at this time taking into consideration the cost/benefit analysis performed:

- Segment 3 (21P4-1600F): [redacted] This work is estimated to cost $300k with a savings of $6.78/CM; however, system rebuild is not warranted at this time, hazard tree removals will be performed, and we will continue to monitor performance.
- Segment 4 (Pole 1737): [redacted]. This work is estimated to cost $255k with a savings of $10.19/CM; however, system rebuild is not warranted at this time, hazard tree removals will be performed, and we will continue to monitor performance.
- Segment 5 (Pole 1 & Pole 6884): [redacted] This is estimated to cost $268k with a savings of $3.04/CM; however,

system rebuild is not warranted at this time, hazard tree removals will be performed, and we will continue to monitor performance.

- Segment 6 (Pole 1910): [redacted] This work is estimated to cost $353k with a savings of $6.32/CM; however, system rebuild is not warranted at this time, hazard tree removals will be performed, and we will continue to monitor performance.
- Segment 7 (Pole 5140): [redacted]. This work is estimated to cost $244k with a savings of $13.58/CM; however, system rebuild is not warranted at this time, hazard tree removals will be performed, and we will continue to monitor performance.
- Segment 9 (Pole 1797): [redacted]. This work is estimated to cost $1,004k with a savings of $18.76/CM; however, system rebuild is not warranted at this time, hazard tree removals will be performed, and we will continue to monitor performance.
- Segment 12: (Pole 1797): [redacted]. This is estimated to cost $401K with a savings of 7.49/CM; however, system rebuild is not warranted at this time, hazard tree removals will be performed, and we will continue to monitor performance.

Segment	Estimated Cost	% Improvement Customer minutes	Total Customer Minutes Over 4 Years			Cust in Zone	Number of Events Over 4 Years			% Improve Cust Interrupt	Total Number of Customers Interrupted Over 4 Years	Cost per customer minute		
			Non-Storm	Storm	Both		Non-Storm	Storm	Both			Non-Storm	Storm	Both
Segment 1 [redacted] -725 (Install [redacted] -4100)	$ 66,339.00	30%	30,739	2,192,368	2,223,107	520	1	2	3	0%	[redacted]	28.78	$ 0.40	$ 0.40
Segment 2: p338 (Install [redacted] -360R)	$ 66,339.00	30%	15,648	673,060	688,708	329	1	3	4	0%		56.53	$ 1.31	$ 1.28
Segment 10: p#1& p6844 [redacted] - Extend one phase of 1/O TW	$ 121,236.29	40%	23,808	861,502	885,310	142	2	5	7	55%		50.92	$ 1.41	$ 1.37
Segment11 [redacted] -4001. Replace [redacted] -125 with [redacted] -4002	$ 66,339.00	30%	62,101	139,303	201,404	89	7	2	9	0%		14.24	$ 6.35	$ 4.39
Preferred Option 1	$ 320,253.29	33%	132,296	3,866,233	3,998,529		11	12	23	14%		29.79	$ 1.02	$ 0.99
Segment 12: p1797 [redacted] - Reconductor Bare #2 with 1/0 TW (9,500ft)	$ 400,575.55	45%	80,508	395,187	475,695	229	2	5	7	50%		44.23	$ 9.01	$ 7.49
Segment 3 [redacted] -1600F,p164, [redacted] - Recon/Convert	$ 299,723.87	45%	12,467	380,753	393,220	50	4	3	7	50%		213.70	$ 7.00	$ 6.78
Segment 4:p1737 [redacted] - Recon p1672 to p902)	$ 255,026.00	45%	14,609	207,910	222,519	45	4	2	6	50%		155.17	$ 10.90	$ 10.19
Segment 6: p1910 [redacted] - Recon/Convert)	$ 353,045.86	40%	36,792	521,640	558,432	61	3	6	9	55%		95.96	$ 6.77	$ 6.32
Segment 7: p5140 (ROW off [redacted] - Recon /Convert)	$ 244,415.90	40%	29,705	150,275	179,980	26	7	3	10	55%		82.28	$ 16.26	$ 13.58
Segment 9: Reconductor 20,000ft of [redacted]	$ 1,003,983.36	45%	80,508	395,187	475,695	229	2	5	7	50%		110.85	$ 22.58	$ 18.76
Segment 5: p#1 &p#6844 [redacted] & [redacted] Reconductor and Covert 3000ft	$ 268,934.18	40%	23,808	861,502	885,310	142	2	5	7	55%		112.96	$ 3.12	$ 3.04
Option 2	$ 3,024,721.72	43%	386,885	5,917,185	6,304,070		33	36	69	41%		72.17	$ 4.72	$ 4.43

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Preliminary Approval	06-01-21
Detail Engineering	9-1-21
Final Approval	9-15-21
Material Ordered	9-20-21
Request Setting Changes	10-1-21

Milestone/Phase Name	Estimated Completion Date
Poles Set as needed	12-1-21
Construction Starts	1-1-22
Construction Ends	10-1-22
Conversion	11-15-22

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2022	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	2022	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach
Internal construction resources not available to perform the work.	2022	High	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	Medium	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
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. Most of this work will require system to be abnormal for any extended period of time.

References

CD01685 PAF Calculator.xlsm

CD01685 Load Summary.pdf

CD01685 Reliability by Device rev1.pdf

CD01685 Need Statement.pdf

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

Visio-[redacted] Map of Proposals.pdf

Visio-[redacted] Outage Map.pdf

Visio-Tree Trimming Map.pdf

Visio-[redacted] PC&E oneline.pdf