EVERSOURCE

Project Approval Form

Project Title: Convert ABB Relay Testing Site Service	Project Number: CD02100
Date Prepared: 12/12/2023	**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: 12/31/2024	
Total Capital Request: $367.6k	**Authorization Type:** Full Funding

1. Executive Summary

[redacted]

[redacted]

Full Funding.

On December 15, 2022, the project's Partial Funding was approved for $256K. The Full Funding amount is $367.6K. The difference is $111.6K, which is 144 percent over. The table below shows the cost breakdown for the increase.

Partial Funding Approved Amount.	$	256.00
Minus Substation work at 2016 units.	$	(72.47)
Add this amount to get Partial Funding Distribution Amount to 2023 units due to increased labor and material costs	$	111.09
Eliminated installing a gate in the substation fence.	$	(4.79)
Minus 24 feet of secondary cable.	$	(2.15)
Added 65 feet of UG conduits on private property and a secondary pull handhole.	$	32.75
Additional 186 feet of 4/0 Al EPR primary cable.	$	14.46
Additional excavating contractor costs.	$	32.71
	$	367.60

The Partial Funding included $72.47K of substation work that will not be covered under a distribution work order (conduits installed inside the substation yard.) Then while creating the detail engineering, a better location for the padmounted transformer was found, which involves more underground conduit installations on private property. The new padmounted transformer location has better access and eliminates the installation of a gate in the substation fence.

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	2023	2024	Year 3+	Total
Internal Labor and Construction Equipment	4.7	20.3	0.0	24.9
Outside Services	25.1	109.2	0.0	134.3
Materials	5.0	21.8	0.0	26.9
Removals	1.8	7.8	0.0	9.6
Risk and Contingency	6.2	27.2	0.0	33.4
Other	0.0	0.0	0.0	0.0
Subtotal	**42.8**	**186.3**	**0.0**	**229.1**

Indirect Capital Costs	2023	2024	Year 3+	Total
Indirect/Overheads (including benefits)	25.9	112.6	0.0	138.5
Capitalized interest or AFUDC, if any	0.0	0.0	0.0	0.0
Subtotal	**25.9**	**112.6**	**0.0**	**138.5**
Total Capital Costs (Gross)	**68.6**	**299.0**	**0.0**	**367.6**
Less Total Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Project Costs (Net of Reimbursement)	**68.6**	**299.0**	**0.0**	**367.6**

Explain unique payment provisions, if applicable:

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

[redacted]

b. Project Need

[redacted]

c. Project Scope

[redacted]

[redacted]

Major Material:

- 2,890 feet of 4/0 Al EPR.
- One 75 KVA padmounted transformer.

4. Alternatives Considered

Project Option Comparison

	Option			
[redacted]				
Authorization Type	Partial	Partial	Full	Partial
Capital Cost	$132.6K	$194.6K	$367.6K	$447.4K
Expense Cost	$6.4K	$9.4K	$36.3K	$21.6K
Total Cost	$139K	$204K	$403.9K	$469K
Total Cost / MVA added	$/KVA	$/KVA	$/KVA	$/KVA
Total Cost / CM Saved	$/CM	$/CM	$/CM	$/CM
Total Cost / CI Saved	$/CI	$/CI	$/CI	$/CI
Preferred option			X	

Option One ($139K.)

[redacted]

Option Two ($204K.)

[redacted]

[redacted]

Option Three ($403.9K.)

[redacted]

Option Four ($469K.)

[redacted]

This option was also not selected due to the higher cost than the preferred solution.

5. Project Schedule

Add any additional milestones that are pertinent to the project.

Milestone/Phase Name	Estimated Date
Partial Approval	12/15/2022
100% Detailed Engineering Completion	6/1/2023
Fully Funded	12/7/2023
Construction Start	10/1/2023
In Service Date	12/31/2023

6. Regulatory Decisions

7. Codes and Standards

8. Risk and Contingencies

Contingencies:

Risk Mitigation:

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
The actual cost is 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	Medium	Design to minimize customer impact. Project Preplanning and customer/community outreach.
Internal construction resources not available to perform the work.	2023	Medium	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	Medium	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	Medium	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	Medium	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	Medium	Use of mats and specialty equipment, only work during certain times of the year.

9. References

References
1.
2.
3.
4.
5.

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

Attachment	Included in Submittal?
A. Cost Estimate	*YES*
B. P6 Schedule	*NO*
C. Geographic Map	*YES*
D. System and Station One-Lines	*NO*
E. Partial PAF	*YES*
F.	

A. Cost Estimate.

Budget Summary - Preferred Option — Install Two Jerome Home Loop Cables

2023

ID	Title	Status	Rev	Contingency	Expenditure Amount	Net Estimate
4	New ABB Service	Prelim	0	24%	$30,479	$30,479
5	Install two 373B loop cable to ABB Svc	Prelim	0	28%	$154,910	$154,910
7	Install Conduits between MH #7029 and Ne	Prelim	0	30%	$73,195	$73,195
				2023 Total:	**$258,584**	**$258,584**
				Total Project:	**$258,584**	**$258,584**

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Segment

CD02100-04

General Information

Segment: 4 - New ABB Service
Status: Prelim Design Approved
Segment Type: S/S - SWITCHGEAR
Town: NEW BRITAIN
Budget Year: 2023
Work Type: Other
Trimming ☐
In Service Date: 12/31/2023
Description: [redacted]

Itemized Work List

ID	Major Grid	Minor Grid	Description of Work to be Performed

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	24.00%
SubTotal:	$24,580
Contingency Amount:	$5,899
Estimate:	$30,479
Reimbursement:	$0
Net Amount:	**$30,479**

Description:

Item Description	CU		Amount
ENCLOSURE DB/UG - Transformer Pad/Handhole	16-UG143	[redacted]	$6,208.80
UG CABLE UG - Copper Secondary in Conduit 'Between Pad Transformer and ABB Service.	16-UG153		$9,072.00
OTHER OTHER Install gate in the substaiton chain link fence.	16-ALL14		$3,000.00
XF DB/UG - Padmount XF - 3ph Install new 75 KVA padmounted transformer.	16-UG131		$6,299.20

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Segment

CD02100-05

General Information

Segment: 5 - Install two 373B loop cable to ABB Svc
Status: Prelim Design Approved
Segment Type: S/S - SWITCHGEAR
Town: NEW BRITAIN
Budget Year: 2023
Work Type: Other
Trimming ☐
In Service Date: 12/31/2023
Description: [redacted]

Itemized Work List

ID	Major Grid	Minor Grid	Description of Work to be Performed

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	28.00%
SubTotal:	$121,023
Contingency Amount:	$33,886
Estimate:	$154,910
Reimbursement:	$0
Net Amount:	**$154,910**

Description:

Item Description	CU	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	$3,509.60
TRAFFIC OH/DB/UG - Traffic Control - Police Officer	16-ALL18	$15,000.00
DB CABLE DB/UG - 4/0 - 3-1/C (3ph) Al 'MH# 709 to MH#402	16-UG113	$3,024.00
DB CABLE DB/UG - 4/0 - 3-1/C (3ph) Al 'MH# 709 to MH#402	16-UG113	$3,024.00
DB CABLE DB/UG - 4/0 - 3-1/C (3ph) Al MH#402 to Pad#403	16-UG113	$1,579.20
DB CABLE DB/UG - 4/0 - 3-1/C (3ph) Al MH#7029 to MH#706 Corbin Ave.	16-UG113	$12,062.40
DB CABLE DB/UG - 4/0 - 3-1/C (3ph) Al MH#7029 to MH#706 Corbin Ave.	16-UG113	$12,062.40
DB CABLE DB/UG - 4/0 - 3-1/C (3ph) Al 'MH#704 to MH#709 Black Rock Ave.	16-UG113	$11,659.20
DB CABLE DB/UG - 4/0 - 3-1/C (3ph) Al 'MH#704 to MH#709 Black Rock Ave.	16-UG113	$11,659.20
DB CABLE DB/UG - 4/0 - 3-1/C (3ph) Al 'MH#705 to MH#704	16-UG113	$7,190.40
DB CABLE DB/UG - 4/0 - 3-1/C (3ph) Al 'MH#705 to MH#704	16-UG113	$7,190.40
DB CABLE DB/UG - 4/0 - 3-1/C (3ph) Al 'Mh#706 to MH#705	16-UG113	$9,139.20
DB CABLE DB/UG - 4/0 - 3-1/C (3ph) Al 'Mh#706 to MH#705	16-UG113	$9,139.20
DB CABLE DB/UG - 4/0 - 3-1/C (3ph) Al New ABB Pad Xfrmr to MH #7029.	16-UG113	$7,392.00
DB CABLE DB/UG - 4/0 - 3-1/C (3ph) Al New ABB Pad Xfrmr to MH #7029.	16-UG113	$7,392.00

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Segment

CD02100-07

General Information

Segment: 7 - Install Conduits between MH #7029 and Ne
Status: Prelim Design Approved
Segment Type: S/S - SWITCHGEAR
Town: NEW BRITAIN
Budget Year: 2023
Work Type: Other
Trimming
In Service Date: 12/31/2023
Description: [redacted]

Itemized Work List

ID	Major Grid	Minor Grid	Description of Work to be Performed

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	30.00%
SubTotal:	$56,304
Contingency Amount:	$16,891
Estimate:	$73,195
Reimbursement:	$0
Net Amount:	**$73,195**

Description:

Item Description	CU	[redacted]	Amount
CONDUIT UG-Ductline-up to 12 duct - Traveled Way / Paved	16-UG137		$56,304.00

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

E. Partial PAF.

Operations Project Authorization Form

Project Title: Convert ABB Relay Testing Site Service	**Project Number: CD02100**
Date Prepared: 12/08/2022	**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:** Specific
Project Sponsor: [redacted]	**Capital Investment part of original Operating Plan:** No
Estimated in service date: 12/31/2023	**Emergency Related Request?** No
Eng./Constr. Resources Budgeted? No	**Facility Type** (check all that apply)**:** ☐ PTF ☐ non-PTF ☒ Distribution
Total Gross Capital Request: $256K	**Authorization Type:** Initial Funding

Executive Summary

[redacted]

[redacted]

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	$19	$0	$0	$19
Outside Services	$58	$0	$0	$58
Materials	$61	$0	$0	$61
Removals	$16	$0	$0	$16
Risk and Contingency	$2	$0	$0	$2
Other	$0	$0	$0	$0
Subtotal	**$156**	**$0**	**$0**	**$156**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	$94	$0	$0	$94
Capitalized interest or AFUDC, if any	$5	$0	$0	$5
Subtotal – Indirect Costs	**$99**	**$0**	**$0**	**$99**
Total Gross Capital Costs	**$256**	**$0**	**$0**	**$256**
Customer Contribution	**$0**	**$0**	**$0**	**$0**
Total Net Capital Project Costs	**$256**	**$0**	**$0**	**$256**

Technical Justification:

Project Need, Objective, and Justification:

[redacted]

[redacted]

Project Scope:

[redacted]

Major Material:

- 3,051 feet of 4/0 Al EPR.
- One 75 KVA padmounted transformer.

Background:

[redacted]

Alternatives Considered:

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

Alternatives were considered (please describe below)

Option One ($139K.)

[redacted]

Option Two ($204K.)

[redacted]

- Primary [redacted]

[redacted]

Option Four ($469K.)

[redacted]

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

This option was also not selected due to the higher cost than the preferred solution.

Project Option Comparison

Design Criteria	Option			

[redacted]

Cost	$139K	$204K	$259K	$469K
Preferred option			X	

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	3/1/2023

Milestone/Phase Name	Estimated Date
Construction Start	9/1/2023
Testing/Commissioning	N/A
In Service Date	12/31/2023

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2023	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	Medium	Design to minimize customer impact. Project Preplanning and customer/community outreach.
Internal construction resources not available to perform the work.	2023	Medium	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	Medium	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2023	High	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	Medium	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	Medium	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	Medium	Use of mats and specialty equipment, only work during certain times of the year.