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Project Approval Form

Project Title: [redacted] – New Service	Project Number: CD02133
Date Prepared: 12/18/2023	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** SPECIFIC PROJECTS-NEW SRVCE
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: $6,469K ($553.4K)	**Authorization Type:** Full Funding

1. Executive Summary

Project CD02133 – [redacted] New Service – was created to cover the costs associated with supplying the circuits and capacity to a new customer. The facility will consist of four commercial buildings. The current construction design has a projected load of [redacted]

The existing electrical infrastructure in the area cannot support the new load. [redacted]

- Division: Central
- District: Hartford
- City/Town: East Hartford

The approved Partial Funding estimate for this work is $2,523K. The Full funding estimate is $6,469K. This is an increase of $3,946K or 256% of partial.

The drivers for the increased estimate are:

1. The work on private property (NB-2) is included in the total cost for this project. This work was designed and estimated by the Field Engineering team but has been added to this project to realize administrative efficiencies. The cost for this work is $2,343K, with the customer responsible for $553.4K.
2. The work on public property (NB-12) for which Distribution Design Engineering designed and estimated separated this project into three segments.
    a. Segment 1 called for upgrading the 32G2 getaway cable.
    b. Segment 2 called for upgrading the 32G7 getaway cable and extending it.
    c. Segment 3 called for extending the 32G9 cable.

Segment 1

Full funding estimate is $135K over the Partial Funding estimate.

- 1000 CU Cut Length Reels came in at $144/FT vs $96/FT used in partial funding estimate. This amounts to $40,848 increase in the cost of the cable.
- Manhole cleaning was $15k higher.
- Partial Funding estimate called for 851 ft of 1000 CU cable and the full funding estimate called for 1,470 ft for an additional $89,136.

Segment 2

Full funding estimate is $561K over the Partial Funding estimate.

- 1000 cu cable cut length reels increase was $277,248.
- Manhole cleaning was $37K over Partial Funding Estimate.
- Partial Funding estimate called for 5,776 ft of 1000 CU cable and the Full funding estimate called for 6,830 ft for an additional $151,776.

Segment 3

Full funding estimate was $362,068 over the Partial Funding estimate.

- 1000 cu cable cut length reels increase was $120,960.
- Partial Funding estimate called for 2,520 ft of 1000 CU cable and the Full funding estimate called for 3,040 ft for an additional $74,880.

The remaining difference is due to the associated indirect and overhead costs.

The NB-12 calculation for the estimated load is $8,254K. Since the NB-12 expected revenue is larger than the cost of the line upgrades and extensions, subsection B of NB-12 does not apply. However, the anticipated load is considered at risk and NB12-subsection C applies. As a result, the customer has provided a refundable advance equal to the construction cost, of $1,970K. The additional advance amount will be refunded if the circuits are put to full use, as specified in the customer's requests.

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	2023	2024	Total
Direct Capital Costs			
Internal Labor and Construction Equipment	282.6	64.9	347.4
Outside Services	277.0	441.7	718.7
Materials	2,698.1	0.0	2,698.1
Removals	162.6	22.2	184.8
Risk and Contingency	451.3	0.0	451.3
Other	0.0	0.0	0.0
Subtotal – Direct Costs	**3,871.6**	**528.8**	**4,400.4**
Indirect Capital Costs			
Indirect/Overheads (including benefits)	1,631.0	437.6	2,068.7
Capitalized interest or AFUDC, if any	0.0	0.0	0.0
Subtotal – Indirect Costs	**1,631.0**	**437.6**	**2,068.7**
Total Gross Capital Costs	**5,502.6**	**966.5**	**6,469.1**
Customer Contribution (NB-2)	-$553.4	$0	-$553.4
Total Net Capital Project Costs	**4,949.2**	**966.5**	**5,915.7**

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

Customer is building four new commercial buildings at [redacted] in East Hartford, CT. Building 1 and 2 expected load is [redacted] each, building 3 is [redacted], and building 4 is [redacted] with the total projected load of [redacted]

[redacted]

b. Project Need

[redacted]

c. Project Scope

Phase 1:

[redacted]

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

[redacted]

Phase 2:

[redacted]

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

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted] n up to
- [redacted]

Major Material:

- 10,647’ of 1000 Cu 3-1/C Cable
- 1 Radial Recloser with vertical disconnect switches
- 1 Gang Operated Air Break (GOAB) disconnect switch
- 1 Riser
- 2 PME-9 Switchgear Pairs (Total 4 PME-9 Switchgears) – NB2
- 900’ of 500 Cu – NB2
- 6 Pad Transformers – NB2
- 16,766’ of 4/0 AL – NB2 (FED will have the exact length

4. Alternatives Considered

Option 1 – [redacted]

Option 2 – This option is similar to option 1: [redacted]

Project Option Comparison

	Options	
[redacted]		
Estimate Type:	Full	Partial
Capital Cost	$6,469K	$1,909K*
Expense Cost	$K	$101K*
Total Cost	$K	$2,010K*
MVA Added	9.45	9.45
Preferred option	X	

* These values use legacy estimating units and do not include any of the New Service costs on private property. These additional costs would make Option 2 more expensive than Option 1.

5. Project Schedule

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

6. Regulatory Decisions

N/A

7. Codes and Standards

N/A

8. Risk and Contingencies

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2024	Medium	Included contingency costs are in the funding request. Detailed Field Analysis and walk down for project development were performed to avoid potential issues.
Internal construction resources not available to perform the work.	2024	High	External resources are planned to perform the work. Competitive bidding will be used to ensure lowest outside labor cost.

Materials Shortage or long lead times	2024	High	Material procurement has been a challenge in recent years. This issue is anticipated to persist in the foreseeable future.
Storm delays	2024	Medium	Storm delays are always a concern with Utility work

9. References

References
1.

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

Attachment	Included in Submittal?
A. Cost Estimate	*YES*
B. Geographic Map	*YES*
C. System One Line	*YES*
D. Initial Funding PAF	*YES*

Attachment A: Cost Estimates

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Design Alternative CD02133-01

Estimate

Preliminary
Estimate Summary

Revision Number:	0
Contingency:	24.00%
SubTotal:	$215,318
Contingency Amount:	$51,676
Estimate:	$266,995
Reimbursement:	$0
Net Amount:	**$266,995**

Description: [redacted] - Reconductor
Getaway Cable

Item Description	CU	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	$7,019.20
TRAFFIC OH/DB/UG - Traffic Control - Police Officer	16-ALL18	$24,080.00
UG CABLE DB/UG - 750/1000 - 3-1/C (3ph) Cu	16-UG114B	$81,696.00
UG CABLE UG - Cable Removal - all cables	16-UG117	$17,020.00
OTHER OTHER 20% Contractor Cost	16-ALL14	$30,703.00
OTHER OTHER 4 MH Cleaning @ $1200/ea.	16-ALL14	$4,800.00
OTHER OTHER Station Work	16-ALL14	$50,000.00

[redacted]

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Design Alternative

CD02133-02

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$865,874
Contingency Amount:	$207,810
Estimate:	$1,073,684
Reimbursement:	$0
Net Amount:	**$1,073,684**
Description:	[redacted] Recon. Getaway & Extend Cable UG

Item Description	CU	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	$7,019.20
TRAFFIC OH/DB/UG - Traffic Control - Police Officer	16-ALL18	$95,900.00
OTHER OTHER 20% contctor cost	16-ALL14	$130,639.00
UG CABLE DB/UG - 750/1000 - 3-1/C (3ph) Cu 851' Reconductor and 4925' Cable Extention	16-UG114B	$554,496.00
OTHER OTHER 9 MH Cleaning @ $1200/ea.	16-ALL14	$10,800.00
UG CABLE UG - Cable Removal - all cables Remove 1000 AL to Reconductor	16-UG117	$17,020.00
OTHER OTHER Station Work	16-ALL14	$50,000.00

[redacted]

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Design Alternative CD02133-03

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$510,565
Contingency Amount:	$122,536
Estimate:	$633,100
Reimbursement:	$0
Net Amount:	**$633,100**

Description: [redacted] Extend Cable UG

Item Description	CU	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	$7,019.20
TRAFFIC OH/DB/UG - Traffic Control - Police Officer	16-ALL18	$56,885.00
UG CABLE DB/UG - 750/1000 - 3-1/C (3ph) Cu	16-UG114B	$241,920.00
POLE DB/UG - Riser - 3ph	16-UG146	$10,794.40
OTHER OTHER 20% contactor cost	16-ALL14	$74,443.00
SECTIONALIZE OH-Vertical Disconnect Switches-600/900 amp 3-1ph for RR	16-OH43	$10,283.20
CONDUIT UG-Ductline-up to 12 duct - Traveled Way / Paved New Riser Pole to MH#182	16-UG137	$40,664.00
SECTIONALIZE OH - GOAB Switch p#1407	16-OH44	$20,566.40
SECTIONALIZE OH - Recloser - 3ph RR	16-OH38	$47,989.60

[redacted]

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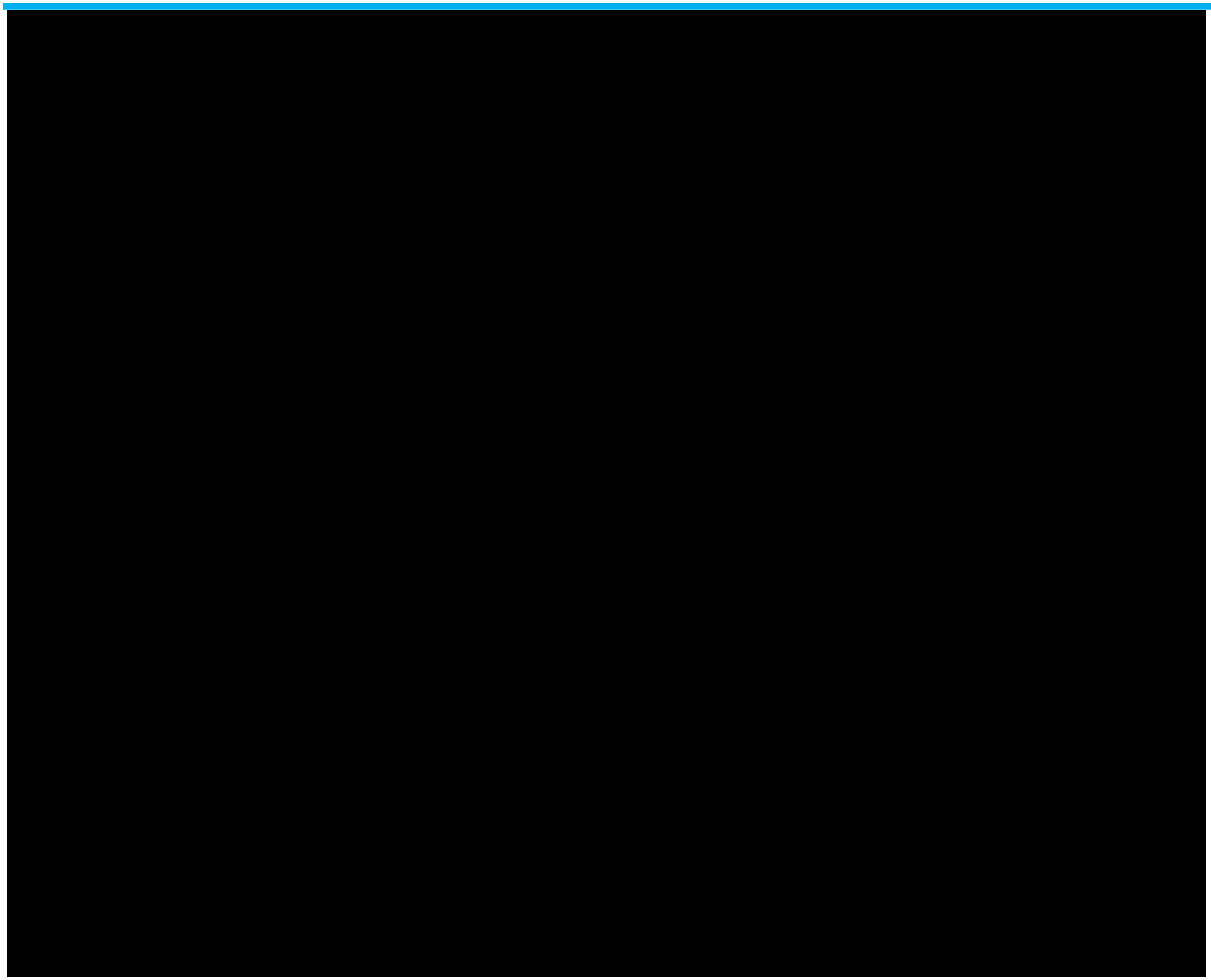
Attachment B: Partial Funding PAF









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Attachment D: Partial Funding PAF

Operations Project Authorization Form

Project Title: [redacted] **New Service**	**Project Number: CD02133**
Date Prepared: 06/13/2023	**Company:** Eversource CT
Organization: Distribution Engineering	**Class(es) of Plant:** D Line
Project Initiator: [redacted]	**Project Category:** SPECIFIC PROJECTS-NEW SRVCE
Project Manager: [redacted]	**Project Type:** Specific
Project Sponsor: [redacted]	**Capital Investment part of original Operating Plan:** No
Estimated in service date: 3/31/2024	**Emergency Related Request?** No
Eng./Constr. Resources Budgeted? No	**Facility Type** (check all that apply)**:** ☐ PTF ☐ non-PTF ☒ Distribution
Total Gross Capital Request: $2,397K Customer PMT ($590K)	**Authorization Type:** Initial Funding

Executive Summary

This project is being established to cover the costs associated with supplying a new service to the [redacted] located in East Hartford, CT. The facility will consist of four commercial buildings. The current construction design has a projected load of [redacted]

[redacted]

The line upgrades and extension cost of this project is $1,933K. The NB-12 calculation for the estimated load is $8,254K. Since the NB-12 expected revenue is larger than the cost of the line upgrades and extensions, subsection B of NB-12 does not apply. However, the anticipated load is considered at risk and NB12-subsection C applies. As a result, the customer has provided a refundable advance equal to the construction cost, of $1,933K. The additional advance amount will be refunded when the circuits are put to full use, as specified in the customer's requests.

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NB-2 is the Eversource Policy used to calculate customer costs associated with the work performed on private property defined in NB-1 & NB-10. Customer has paid $590k on 2/27/23 for the 4/0 Al primary conductor, switchgear and transformers per our new business policies. Customer to perform all civil work on private property, including manholes, duct system, and pad mount transformers at their facility.

This project will be completed in two phases. Details are mentioned in the Technical Justification and Project Scope.

Design approved on November 10th, 2022, Solutions Design Committee (SDC) meeting.

Project Costs Summary

Note: Dollar values are in thousands

Capital Costs	2023	2024	Total
Direct Capital Costs			
Internal Labor and Construction Equipment	282.6	64.9	347.4
Outside Services	277.0	441.7	718.7
Materials	2,698.1	0.0	2,698.1
Removals	162.6	22.2	184.8
Risk and Contingency	451.3	0.0	451.3
Other	0.0	0.0	0.0
Subtotal – Direct Costs	**3,871.6**	**528.8**	**4,400.4**
Indirect Capital Costs			
Indirect/Overheads (including benefits)	1,631.0	437.6	2,068.7
Capitalized interest or AFUDC, if any	0.0	0.0	0.0
Subtotal – Indirect Costs	**1,631.0**	**437.6**	**2,068.7**
Total Gross Capital Costs	**5,502.6**	**966.5**	**6,469.1**
Customer Contribution (NB-2)	-$553.4	$0	-$553.4
Total Net Capital Project Costs	**4,949.2**	**966.5**	**5,915.7**

Technical Justification:

Project Need, Objective and Justification:

This project is developed to support the new [redacted] load requested by the customer for their four commercial buildings at [redacted], East Hartford, CT. Two of the four buildings will be 100K ft^2 buildings, one will be 1.2M ft^2 and the other will be 1.3M ft^2 warehouses. The customer has a targeted In-Service-Date of 12/29/2023 for building 3 and building 4.

[redacted]

[redacted]

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

[redacted]

[redacted]

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

[redacted]

[redacted]

Project Scope:

Phase 1:

[redacted]

- [redacted]

Phase 2:

[redacted]

- [redacted]

[redacted]

- [redacted]

Major Material:

- 10,647’ of 1000 Cu 3-1/C Cable
- 1 Radial Recloser with vertical disconnect switches
- 1 Gang Operated Air Break (GOAB) disconnect switch
- 1 Riser
- 2 PME-9 Switchgear Pairs (Total 4 PME-9 Switchgears) – NB2
- 900’ of 500 Cu – NB2
- 6 Pad Transformers – NB2
- 16,766’ of 4/0 AL – NB2 (FED will have the exact length

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Background:

Customer is building four new commercial buildings at [redacted] in East Hartford, CT. Building 1 and 2 expected load is [redacted] each, building 3 is [redacted], and building 4 is [redacted] with the total projected load of [redacted].

[redacted]

[redacted]

[redacted]

Alternatives Considered:

Option 1 – Proposed Design

Option 2 – This option is relatively the same as option 1: [redacted]

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[redacted]

Project Option Comparison

	Options	
[redacted]		
Cost	$1,974K	$2,010K
MVA added	9.77	9.77
Cost / MVA added	$202.05K/MVA	$205.73K/MVA
Preferred option	X	

Regulatory Approvals:

Are Regulatory body approvals needed for the project?

No

[redacted]

Project Schedule

Milestone/Phase Name	Estimated Date
NB12 Subsection C Refundable Advance Received	March, 2023
Long Lead Material	March, 2023
Preliminary Approval	July, 2023
Detail Design (in progress due to customer schedule)	July, 2023
Settings Requested	July, 2023
Construction Start	August, 2023
Phase one ISD	December, 2023
Phase two ISD	April, 2024

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2024	Low	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	2024	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach.
Internal construction resources not available to perform the work.	2024	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.	2024	Medium	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2024	High	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2024	Medium	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2024	Low	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.