EVERSOURCE

Project Approval Form

Project Title: [redacted]	Project Number: CD01374
Date Prepared: 09/28/2023	Company: Eversource CT
Organization: Distribution Engineering	Project Category: DB CABLE REPLACE-SPECIFIC 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: 10/31/23	
Total Capital Request: $666.9K	Authorization Type: Full Funding

1. Executive Summary

There have been seven DB failures in this apartment complex in the last five years:

- 3153349: 5/30/2016 – 22 cust, 11 hours 36 min – elbow.
- 3248220: 10/26/2016 – 2 cust, 11 hours – cable fault.
- 3408182: 8/20/2017 – 22 cust, 30 min – animal at riser.
- 3940463: 7/08/2019 – 22 cust, 2 hours – animal.
- 3958015: 8/02/2019 – 97 cust, 7 hours 30 min – cable fault.
- 3975038: 8/28/2019 – 102 cust, 6 hours 34 min – cable fault.
- 3978730: 9/05/2019 – 25 cust, 7 hours 45 min – [redacted]

[redacted]

9/28/23 – Full Funding request. The Partial Funding estimate is $375K, approved on 9/19/19. Full Funding estimate is $667K, a difference of $292K, or a 78% increase. There is no scope change.

The reasons for the $292K difference between the Partial Funding and the Full Funding are as follows:

1) The current approved estimate was prepared using legacy unit costs, which are approximately 30% lower than the estimates used today to account for an increase in material and labor costs. This 30% adds $112.5K to the estimate, which would make the Partial Funding estimate $487.5K, a difference of $179.5K compared to the Full Funding estimate.
2) 504 feet of conduit needed to be excavated, installed, and backfilled to pull the new three-phase cable in which was not identified in the estimate. This work started during daytime hours and was completed during the evening. This contributed $25.9K extra to the job.
3) Local crews pulled the cable in this conduit the same night the conduit was installed.
4) Generators needed to be rented to keep power to the customers during the cutover to the new cable. The generators contributed $94.2K to the project.

   Revised Partial Funding estimate would be $375K + $112.5K + $25.9K + $94.2K = $607.6K, or 9% less than Full Funding.

   Project expected to be completed October 31, 2023.

2. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	Year 2020	Year 2021	Year 2022	Year 2023	Total
Direct Capital Costs					
Internal Labor and Construction Equipment	9.0	0.5	20.4	7.3	37.2
Outside Services	56.8	3.1	128.4	46.1	234.4
Materials	10.2	0.6	23.0	8.3	42.0
Removals	5.8	0.3	13.1	4.7	23.8
Risk and Contingency	11.3	0.6	25.5	9.1	46.5
Other	0.1	0.0	0.3	0.1	0.5
Subtotal – Direct Costs	**93.1**	**5.1**	**210.6**	**75.6**	**384.4**
Indirect Capital Costs					
Indirect/Overheads (including benefits)	64.4	3.5	145.7	52.3	265.9
Capitalized interest or AFUDC, if any	4.0	0.2	9.1	3.3	16.5
Subtotal – Indirect Costs	**68.4**	**3.8**	**154.8**	**55.5**	**282.5**
Total Gross Capital Costs	**161.5**	**8.9**	**365.4**	**131.1**	**666.9**
Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Total Net Capital Project Costs	**161.5**	**8.9**	**365.4**	**131.1**	**666.9**

3. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

This is a [redacted] customer DB apartment complex that experienced [redacted]. This complex was cable injected in 2007. A loop design per DSEM 07.201 is the preferred design for this complex.

b. Project Need

[redacted]. This will provide a more safe and reliable service and reduce restoration times.

c. Project Scope

[redacted]

4. Alternatives Considered

Project Option Comparison

Design Criteria	Option
[redacted]	
Authorization Type	Full
Capital Cost	$666.9K
Expense Cost	$20.9K
Total Cost	$687.8K
Total Cost / MVA added	$/MVA
Total Cost / CM Saved	$/68.72
Total Cost / CI Saved	$/11,156.64
Preferred option	X

The only alternative would be to do nothing, which is not recommended due [redacted]

5. Project Schedule

Add any additional milestones that are pertinent to the project.

Milestone/Phase Name	Estimated Date
Partial Approval	9/19/19
100% Detailed Engineering Completion	3/21/20
Fully Funded	9/28/23
Construction Start	6/1/20
In Service Date	10/31/23

6. Regulatory Decisions

7. Codes and Standards

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.	2020-23	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	2020-23	Medium	Design to minimize customer impact. Project Preplanning and customer/community outreach.
Internal construction resources not available to perform the work.	2020-23	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.	2020-23	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Materials Shortage or long lead times	2020-23	Medium	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2020-23	Medium	If storm activity delays work, we may be forced to use external resources.

System abnormal configuration	2020-23	Low	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	2020-23	Low	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	2020-23	Low	Use of mats and specialty equipment, only work during certain times of the year.

9. References

References
1. DSEM 07.201 UG Design Selection
2.
3.
4.
5.

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

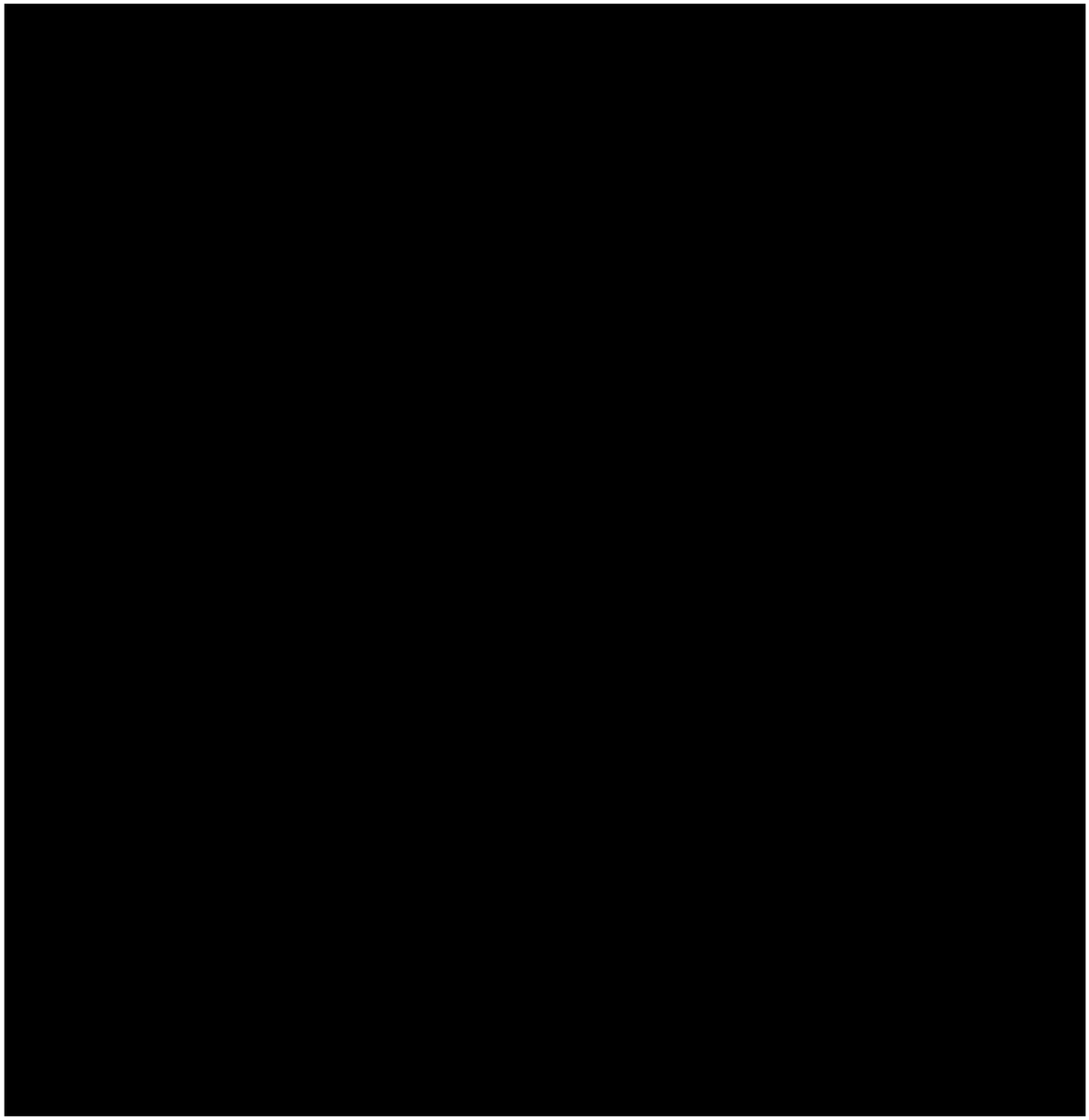
Attachment	Included in Submittal?
A. Description of Work	*YES*
B. Cost Estimate	*YES*
C. Geographic Map	*YES*
D. Partial Funding PAF	*YES*
E.	

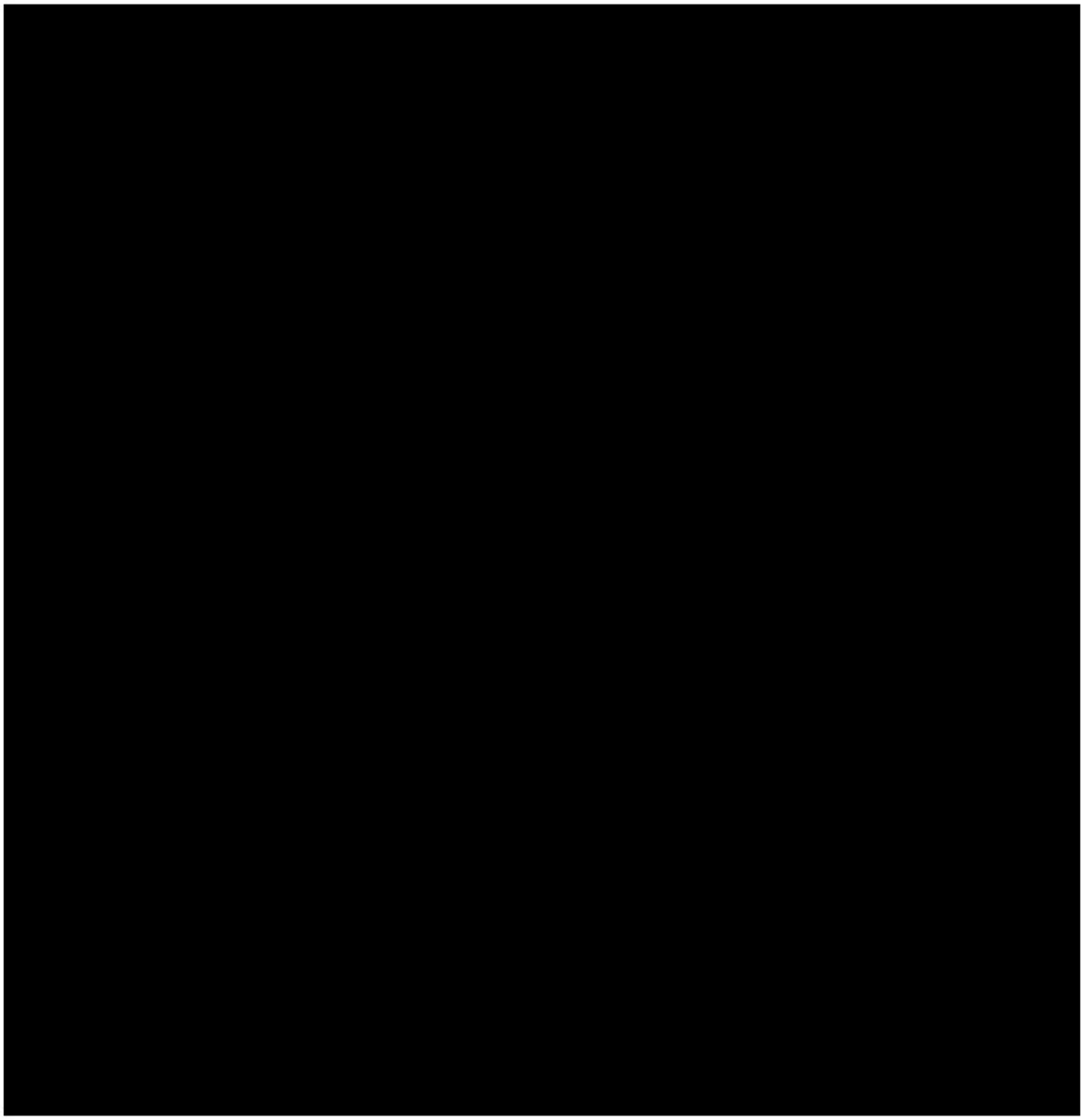
Reference 1

Underground/DB Design
Section 07.20

UG Design Selection **07.201**

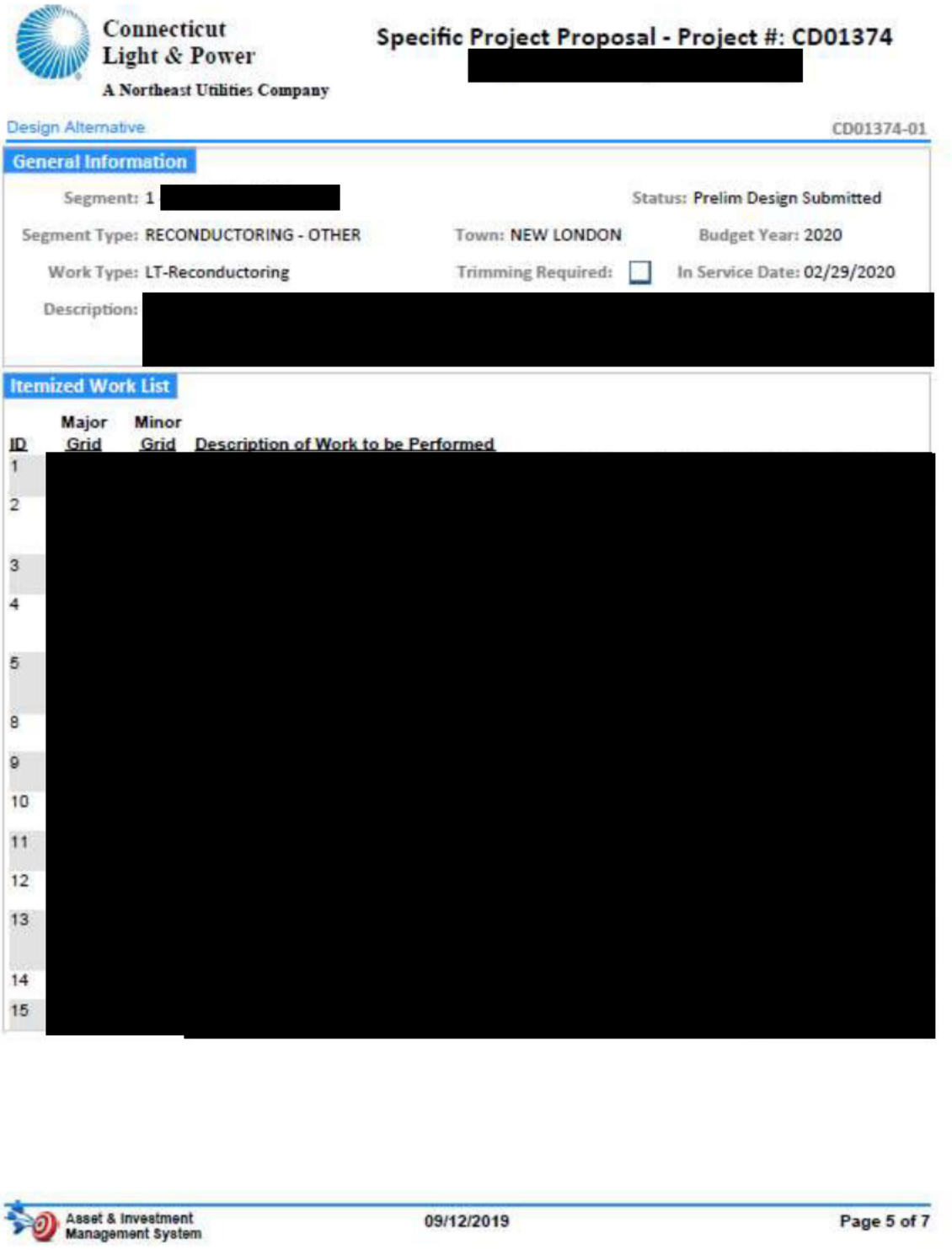
SCOPE – This guide is intended to help select the appropriate manual switchgear for safe, reliable, and cost effective design and operation of the underground system. For automatic switchgear applications, see DSEM Sections 11.55 and 11.56. Review the following sections and use Table 1 to help find the appropriate Design & Application Standard.





Notes
1. See DSEM 07.201 for discussion on selection of design criteria.
2. If the loop is supplied by fused risers from an overhead system, then no switchgear is required.

Attachment A – Description of Work



Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01374 [redacted]

Design Alternative CD01374-01

General Information

Segment: 1 [redacted] Status: Prelim Design Submitted

Segment Type: RECONDUCTORING - OTHER Town: NEW LONDON Budget Year: 2020

Work Type: LT-Reconductoring Trimming Required: ☐ In Service Date: 02/29/2020

Description: [redacted]

Itemized Work List

ID	Major Grid	Minor Grid	Description of Work to be Performed
1	[redacted]		
2			
3			
4			
5			
8			
9			
10			
11			
12			
13			
14			
15			

Asset & Investment Management System 09/12/2019 Page 5 of 7

Attachment B – Cost Estimate

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01374 [redacted]

Design Alternative CD01374-01

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	24.00%
SubTotal:	$302,489
Contingency Amount:	$72,597
Estimate:	$375,086
Reimbursement:	$0
Net Amount:	**$375,086**

Description:

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$14,038.40
TRAFFIC OH/DB/UG - Traffic Control - Police Officer	16-ALL18			$10,000.00
DB CABLE DB/UG - #1 - 3-1/C (3ph) Al	16-UG112			$109,440.00
UG CABLE DB - Aluminum Secondary in Conduit	16-UG116			$960.00
XF DB/UG - Padmount XF - 1ph	16-UG130			$15,736.00
XF DB/UG - Padmount XF - 3ph	16-UG131			$12,598.40
POLE DB/UG - Riser - 3ph	16-UG146			$10,794.40
ENCLOSURE DB - Fiberglass Enclosure - 3ph - Doghouse	16-UG148			$6,212.80
CONDUIT DB - Conduit Installation	16-UG152			$89,600.00

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Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01374 [redacted]

Design Alternative			CD01374-01
UG CABLE DB - Splice Box	16-UG154	[redacted]	$28,108.80
OTHER OTHER Cost to install new service to customers off the reverse riser pole 5757.	16-ALL14		$5,000.00

Associated / Impacted Devices

Status	Type / SysID	Street / Cross St	Structure / Town	Circuit	Map	Cust	Notes
Existing	[redacted]	[redacted]	11546 NEW LONDON	[redacted]			
Existing			10297 NEW LONDON				

Reliability Projection

Title:

Outage Start Date: 01/01/2007 Outage End Date: 09/11/2019 Years History: 12.70

[redacted]

Attachment C – Geo Map

Project CD01374 – [redacted]
New London, CT

[redacted]

Attachment D – Partial Funding PAF

Operations Project Authorization Form

Date Prepared: 9/10/2019	Project Title: [redacted]
Company/ies: CT	Project ID Number: CD01374
Organization: Distribution Electric	Class(es) of Plant: Distribution
Project Initiator: [redacted]	Project Category: Line
Project Manager: [redacted]	Project Type: DB Cable & Equip Replace -Specific
Project Sponsor [redacted]	Project Purpose: Resolve DB failures.
Estimated in service date: 12/31/2020	If Transmission Project: PTF? NA
Eng. /Constr. Resources Budgeted? No	Capital Investment Part of Original Operating Plan?
Authorization Type: Initial Funding	O&M Expenses Part of the Original Operating Plan?
Total Request: $375,086	

Financial Requirements:

Project Authorization
ERM: _____

FP&A: _____

Executive Summary

There have been seven DB failures in this apartment complex in the last five years:

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3248220: 10/26/2016 – 2 cust, 11 hours – cable fault.
3408182: 8/20/2017 – 22 cust, 30 min – animal at riser.
3940463: 7/08/2019 – 22 cust, 2 hours – animal.
3958015: 8/02/2019 – 97 cust, 7 hours 30 min – cable fault.
3975038: 8/28/2019 – 102 cust, 6 hours 34 min – cable fault.
3978730: 9/05/2019 – 25 cust, 7 hours 45 min - [redacted]

[redacted]

1

Project Costs Summary

Note: Dollar Values are in thousands

	Prior Authorized	2020	20__	20__+	Totals
Capital Additions - Direct	$0	$230	$0	$0	$230
Less Customer Contribution	$0	$0	$0	$0	$0
Removals net of Salvage ____%	$0	$9	$0	$0	$9
Total - Direct Spending	$0	$239	$0	$0	$239
Capital Additions - Indirect	$0	$123	$0	$0	$123
Subtotal Request	$0	$363	$0	$0	$363
AFUDC	$0	$6	$0	$0	$6
Total Capital Request	$0	$368	$0	$0	$368
O&M	$0	$7	$0	$0	$7
Total Request	$0	$375	$0	$0	$375

Financial Evaluation

Note: Dollar Values are in thousands

Direct Capital Costs	Year 1	Year 2	Year 3+	Total
Straight Time Labor	$9	$0	$0	$9
Overtime Labor	$3	$0	$0	$3
Outside Services	$201	$0	$0	$201
Materials	$31	$0	$0	$31
Other, including contingency amounts (describe)	($5)	$0	$0	($5)
Total Direct Costs	**$239**	**$0**	**$0**	**$239**

Indirect Capital Costs	Year 1	Year 2	Year 3+	Total
Indirects/Overheads (including benefits)	$123	$0	$0	$123
Capitalized interest or AFUDC, if any	$6	$0	$0	$6
Total Indirect Costs	**$129**	**$0**	**$0**	**$129**
Total Capital Costs	**$368**	**$0**	**$0**	**$368**

2

Less Total Customer Contribution	$0	$0	$0	$0
Total Capital Project Costs	$368	$0	$0	$368
Total O&M Project Costs	$7	$0	$0	$7
Total Project Cost	$ 375	$ -	$ -	$ 375

Technical Justification:

Project Need Statement

[redacted]

Project Objectives:

[redacted]

Project Scope:

[redacted]

Background / Justification

This is a [redacted] customer DB apartment complex with seven recent equipment failures (4 this year). The complex has already been cable injected in 2007. A loop design, DSEM 7.201, is the preferred design for this complex.

Business Process and / or Technical Improvements:

[redacted]

Alternatives Considered with Cost Estimates

Alternative	Total Cost	Comments

3

All transformers in this development are live-front on poured-in-place pads and part of the design is radial. Some switching has to be performed at hex vaults which are difficult to access and identify. There is really no other viable alternative for this complex.

Project Schedule

Milestone / Phase Name	Estimated Completion Date
Preliminary Engineering	9/15/2019
Detail Design	10/15/2020
Construction	12/31/2020

Regulatory Approvals

None

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2020	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	2020	Low	Design to minimize customer impact. Project Preplanning and customer/community outreach
Internal construction resources not	2020	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.

available to perform the work.			
Internal engineering resources not available to perform the work.	2020	Low	Plan internal resources to perform the work. Use competitive bidding to ensure lowest outside labor cost.
Storm delays	2020	Low	If storm activity delays work, we may be forced to use external resources.
System abnormal configuration	2020	Low	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods

References
none

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

[redacted] Rev 1.pdf

CD01374_project_needs_statement.pdf