EVERSOURCE

Supplement Authorization Form

Project Title: [redacted] *DGI Sensors*	**Project Number: CD00945**
Date Prepared: 04/14/2025	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** Network Reliability
Initiating Organization: Distribution	**Project Type:** Specific
Project DDE: [redacted]	**Capital Investment part of 5-year 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)
Current Authorized Amount: $75.1K	**Approved In-Service Date:** 12/31/18
Supplement Request: $200.2K	**Estimated In-Service Date: 12/31/22**
Total Capital Request: $275.3K	**Authorization Type:** Supplement Request
	Reason: Cost Overage

1. Project Background

The purpose of this project is to enhance the remote monitoring capabilities of the Digital Grid Network Monitoring System through the installation of 69 Digital Grid sensors. Currently, there are 23 Digital Grid Network Protectors fed by the [redacted]

When Project CD00945 was originally developed in 2018, the scope relied on in-house resources to perform the installations in coordination with the Network Major Maintenance Inspection cycle for the [redacted]. This work required significant planning and coordination, including traffic control, feeder outage scheduling, and vault cleaning prior to entry, making collaboration with both internal teams and outside resources essential.

The project could not be executed as planned due to repeated severe weather events that prevented feeder switching, a system-wide distribution moratorium, and attrition of internal resources. Therefore, the life of the project was extended to accommodate for unknown variables such as weather or any abnormal circuit conditions that might have prevented the de-energization of the circuit on the scheduled date to preserve the reliability of the system. These unknown variables caused unintentional delays and the repetition of certain activities such as traffic control and vault cleaning. These additional requirements contributed to increased costs for Project CD00945.

The increase in the overall project cost is primarily attributable to the original funding estimate developed in 2018, which did not account for subsequent increases in unit costs for materials and external services projected for the life of the project 2019-2022. Accordingly, a supplemental authorization of $200.2K is requested, resulting in a total capital request of $275.3K.

Project Scope:

- [redacted]
- Cleaning activities to enter a vault prior to install these sensors.
- Flaggers and/or local Police support for traffic control

2. Supplement Justification Overview

The following are reasons for the budget being over the authorized amount:

a. Increase of project is primarily due to extending the life of the project to accommodate for unknown conditions (Weather, abnormal circuit conditions)
b. Project CD00945 absorbed the cost for cleaning activities such as pumping water out of vaults, air control and removing sludge out from network vaults.
c. High cost of local Police's support to set up work zones and provide traffic control.

3. Supplement Cost Summary (Project Total)

Financial Evaluation ($000's)

Capital Costs	To Date Spend	Prior Authorized	Supplemental Request	Total Request
Internal Labor and Construction Equipment	66.9	0.0	64.4	64.4
Outside Services	107.2	40.5	62.6	103.2
Materials	23.6	18.4	4.4	22.7
Removals	0.0	0.0	7.4	7.4
Risk and Contingency	5.4	0.0	5.4	5.4
Other	0.4	0.0	0.4	0.4
Subtotal	**203.5**	**58.9**	**144.6**	**203.5**

Indirect Capital Costs	To Date Spend	Prior Authorized	Supplemental Request	Total Request
Indirects/Overheads (including benefits)	71.1	15.8	55.3	71.1
Capitalized interest or AFUDC, if any	0.7	0.3	0.4	0.7
Subtotal	**71.8**	**16.2**	**55.6**	**71.8**
Total Capital Costs (Gross)	**275.3**	**75.1**	**200.2**	**275.3**
Less Total Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**

4. New Total Request by Year (if applicable)

Note: If multi-year project, include actuals for current and years past, and then show forecasted spend for upcoming years.

Capital Costs	2019	2020	2021	2022	TOTAL
Internal Labor & Equipment	1.2	8.8	26.8	27.6	64.4
Outside Services	1.9	14.1	43.0	44.2	103.2
Materials	0.4	3.1	9.5	9.7	22.7
Removals	0.1	1.0	3.0	3.3	7.4
Risk and Contingency	0.0	0.0	0.0	5.4	5.4
Other	0.0	0.1	0.2	0.2	0.4
SUBTOTAL Direct Cost	**3.6**	**27.1**	**82.4**	**90.3**	**203.5**
Indirects / Overheads	0.1	0.8	19.2	51.1	71.1
AFUDC	-	-	0.0	0.7	0.7
SUBTOTAL Indirect Cost	**0.1**	**0.8**	**19.2**	**51.8**	**71.8**
TOTAL Capital Request	**3.7**	**27.9**	**101.6**	**142.1**	**275.3**
Less Total Customer Contribution	0.0	0.0	0.0	0.0	**0.0**
TOTAL Project Cost	**3.7**	**27.9**	**101.6**	**142.1**	**275.3**

5. Lessons Learned

Operations Project Authorization Form

Date Prepared: 7/10/2018	**Project Title: [redacted] – DGI Sensors**
Company/ies: CT	**Project ID Number: CD00945**
Organization: Distribution Design	**Class(es) of Plant: Distribution**
Project Initiator: [redacted]	**Project Category: Network Automation**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Project Purpose: Install Digital Grid Sensors**
Estimated in service date: 12/31/218	**If Transmission Project: PTF? N/A**
Eng. /Constr. Resources Budgeted? No	**Capital Investment Part of Original Operating Plan? No**
Authorization Type: Full Funding	**O&M Expenses Part of the Original Operating Plan? No**
Total Request: $75,085	

Financial Requirements:

Project Authorization
ERM: _____

FP&A: _____

Executive Summary

This project is part of the second phase of installing the Digital Grid network remote monitoring system. With the execution of this project Eversource will add the benefit of prolonging the useful life of the protector and transformer due to the system's ability to remotely notify System Operators when conditions such as network protectors pumping or cycling, loss of protector pressure and the presence of water occur.

Overall, these projects are focused on enabling Eversource to increase network protector's reliability and defer network protector's major maintenance from a 2-year cycle to a 4-year cycle, thus creating an O+M savings.

There are [redacted] These installations will try to be worked in conjunction with CD00834 to save on electrician labor and traffic control costs.

This project was presented at TRC on 04/20/17 with an ENG estimate of $43,125 and was approved at $4,300 for Engineering.

Following detailed design, **the total project request is $75,085**.

The revised cost estimate is based on contractor working on two vaults a day at 12 hours a day; also included is Clean Harbor's time to clean out the vaults; traffic control for 12 hours a day.

Project Costs Summary

	Prior Authorized*	Additional Request	2018	2019+	Total**
Capital Additions Direct	$0	$0	$58,921	$0	$58,921
Less Customer Contribution	$0	$0	$0	$0	$0
Removals Net of Salvage	$0	$0	$0	$0	$0
Total - Direct Spending	$0	$0	$58,921	$0	$58,921
Capital Additions - Indirect	$0	$0	$15,844	$0	$15,844
AFUDC	$0	$0	$320	$0	$320
Total Capital Request	$4,210	$70,875	$75,085	$0	$75,085
O&M	$90	-$90	$0	$0	$0
Total Request	**$4,300**	**$70,785**	**$75,085**	**$0**	**$75,085**

* Current Amount authorized in Powerplan

** Total amount needed for authorization in PowerPlan based on ACT

Financial Evaluation

Direct Capital Costs	2018	2019	2020	Total
Straight Time Labor	$ -	$ -	$ -	$ -
Overtime Labor	$ -	$ -	$ -	$ -
Outside Services	$ 40,549	$ -	$ -	$ 40,549
Materials	$ 18,372	$ -	$ -	$ 18,372
Other, including contingency amounts	$ -	$ -	$ -	$ -
Total	$ 58,921	$ -	$ -	$ 58,921

Indirect Capital Costs	2018	2019	2020	Total
Indirects/Overheads (including benefits)	$ 15,844	$ -	$ -	$ 15,844
Capitalized interest or AFUDC, if any	$ 320	$ -	$ -	$ 320
Total	$ 16,164	$ -	$ -	$ 16,164
Total Capital Costs	$ 75,085	$ -	$ -	$ 75,085
Less Total Customer Contribution	$ -	$ -	$ -	$ -
Total Capital Project Costs	$ 75,085	$ -	$ -	$ 75,085
Total O&M Project Costs	$ -	$ -	$ -	$ -
Total Project Cost	$ 75,085	$ -	$ -	$ 75,085

Future Financial Impacts:

Provide below the estimated future costs that will result from the project:
Note: Dollar values are in thousands:

Future Costs	Year 20__	Year 20__	Year20__	Year 20__+	Total Future Project Costs
Capital	$ -	$ -	$ -	$ -	$ -
O&M	-	-	-	-	-
Other	-	-	-	-	-
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Describe the estimated future Capital, O&M and/or Other costs noted above:

What functional area(s) will these future costs be funded in?_____
A representative from the respective functional area is required to be included as a project approver.

If this is other than a Reliability Project, please complete the section below:

Provide below the estimated financial benefits that will result from the project:
Note: Dollar values are in thousands:

Future Benefits	Year 20__	Year 20__	Year20__	Year 20__+	Total Future Project Benefits
Capital	$ -	$ -	$ -	$ -	$ -
O&M	-	-	-	-	-
Other	-	-	-	-	-
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Describe the estimated future Capital, O&M and/or Other benefits noted above:

What functional area(s) will these benefits be reflected in?_____
A representative from the respective functional area is required to be included as a project approver.

Asset Retirement Obligation (ARO) and/ or Environmental Cleanup Costs (Environmental Liabilities):

Is there an ARO associated with this project? If yes, please provide details:

Are there other environmental cleanup costs associated with this project? If yes, please provide details:

Technical Justification:

Project Need Statement

We are in the second phase of installing the Digital Grid network remote monitoring system for Eversource CT. The first phase was installing a new Digital Grid network protector relay in our transformer vaults and a feeder sensor and receiver cabinet in our substations. In phase 2 we plan on installing Digital Grid sensors in the Digital Grid equipped network protectors. These sensors will enable us to defer network protector major maintenance from a 2-year cycle to a 4-year cycle. It is important to note that the opportunity to glean O+M savings from the Digital Grid network monitoring system was not available when many of these network monitoring projects first started. After the merger, all the operating companies transitioned to a unified maintenance manual. One of the new practices to benefit legacy CL&P is that the active monitoring of our network protectors gives us the ability to shift to a four-year protector maintenance frequency. The deferred maintenance will significantly reduce the operating cost of Eversource CT. The sensors are to be added at the same time as the Digital Grid network protector relays are installed under project CD00834.

Benefits of these sensors also include System Operators being notified to conditions such as network protectors pumping or cycling, loss of protector pressure and the presence of water thereby materially prolonging the useful life of the protector and transformer. We look forward to starting this venture and this project provides the necessary first step to installing those sensors and gaining those savings.

Project Objectives

This project intends to leverage the communication infrastructure of the network monitoring systems being installed in Eversource CT major networks by installing sensors in the network protectors that would notify operators of water ingress, loss of protector pressure and excessive pumping. The sensors would also make it possible to move from a 2-year protector major maintenance schedule to a 4-year frequency generating significant O+M savings for the Company.

Project Scope

[redacted]

Background / Justification

These sensor alarms will enable us to defer network protector major maintenance from a 2-year cycle to a 4-year cycle. This will significantly reduce the operating and maintenance costs of Eversource CT.

Business Process and / or Technical Improvements:

The deferral of network major maintenance from a 2-year cycle to a 4-year cycle in Digital Grid equipped protectors will be a significant savings for Eversource CT. The project estimate assumes these sensors will be installed during planned network major maintenance outages and that no switching will be planned to install these sensors.

Alternatives Considered with Cost Estimates

No alternatives considered.

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Project start date	Sept 2018
100% project complete	12/31/2018

Regulatory Approvals

None required.

Risks and Risk Mitigation Plans



Financial risks include extra spend due to traffic control and electrician labor. This estimate assumes that this project (CD00945) will be worked in conjunction with CD00834. By working these two projects together the cost of traffic control and the cost of opening each vault can be divided between the two projects. Should either project be worked separately we will see an increase of $400 per location for traffic control and $195 per location for electrician labor. CD00834 will include similar risks.

References

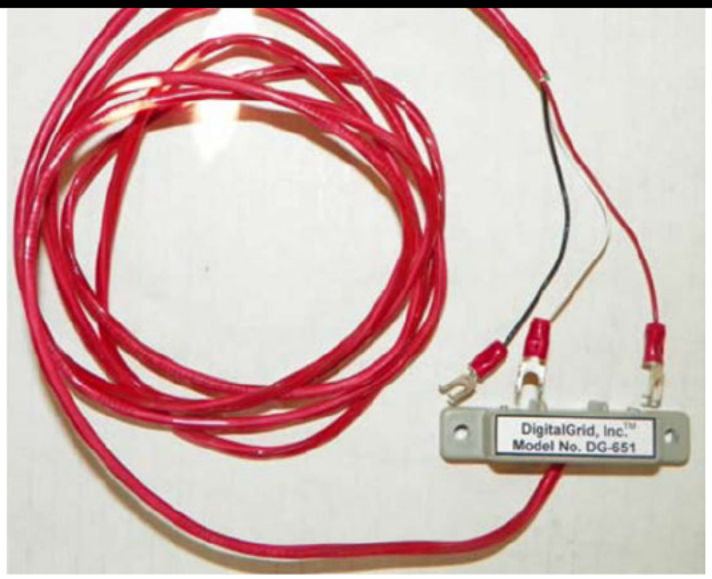
Digital Grid Project Scope Cost EST 2-0414.

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

[redacted]



[redacted]



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