EVERSOURCE

Operations Project Authorization Form

Approved on September 29, 2022 EPAC

Link to Meeting Minutes

Project Title: [redacted] **DSCADA Installation**	**Project Number: CS00590**
Date Prepared: 09/23/2022	**Company: Eversource CT**
Organization: Asset Management	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - SCADA**
Managing Organization: Engineering	**Schedule ID#: N/A**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Estimated in service date: December 18, 2018	**Emergency Related Request? No**
Eng./Constr. Resources Budgeted? Yes	**Facility Type (check all that apply):** ☐ **PTF** ☐ **non-PTF** ☒ **Distribution** ☐ **N/A (General Plant)**
Total Capital Request: $156K	**Authorization Type: Full Funding**

[1] Executive Summary

This project is seeking full funding of $156K for a project completed in 2018 at the [redacted], CT that added DSCADA capability to transformer [redacted]. The major component added was a DSCADA cabinet mounted externally on the [redacted] transformer. Fiber optic cable connections were run to the to the control house. The major components added were an SEL Axion™ 2240Real time Automation controller (RTAC) and a Beckwith™ M-2001D Load tap changer (LTC) control.

The work was executed and completed in 2018 under annual work order number DSN72004. This Project Authorization Form (PAF) provides the documentation necessary to transfer the capital charges to project number CS00590, as the direct capital charges exceeded the $100K annual work order limit imposed by APS-01 Eversource Project Authorization Policy (APS-01). The equipment under this project was placed in service December 18, 2018.

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[2] PROJECT COSTS SUMMARY

Note: Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2022 to Go	2023	2024	2025	2026	2027	Total
1. ROW / Easements / Land Acquisition	$	$0	$	$	$	$	$	$	$0
2. Environmental Approvals / Permits	$	$0	$	$	$	$	$	$	$0
3. Outreach	$	$0	$	$	$	$	$	$	$0
4. Siting Approvals / Permits	$	$0	$	$	$	$	$	$	$0
5. Engineering / Design	$	$15	$	$	$	$	$	$	$15
6. Materials (Eversource purchased)	$	$12	$	$	$	$	$	$	$12
7. Construction (incl matl's by contractors)	$	$75	$	$	$	$	$	$	$75
8. Testing / Commissioning	$	$36	$	$	$	$	$	$	$36
9. Project Mgmt Team	$	$0	$	$	$	$	$	$	$0
10. Removals	$	$0	$	$	$	$	$	$	$0
11. Other	$	$1	$	$	$	$	$	$	$1
12. Risks	$	$0	$	$	$	$	$	$	$0
SUBTOTAL DIRECTS W/ RISKS	**$19**	**$139**	**$**	**$**	**$**	**$**	**$**	**$**	**$139**
13. Indirects/Overhead	$	$17	$	$	$	$	$	$	$17
14. AFUDC	$	$0	$	$	$	$	$	$	$0
PROJECT TOTAL – BASELINE BUDGET	**$19**	**$156**	**$**	**$**	**$**	**$**	**$**	**$**	**$156**
15. Contingency	$	$0	$	$	$	$	$	$	$0
TOTAL CAPITAL REQUEST	**$19**	**$156**	**$**	**$**	**$**	**$**	**$**	**$**	**$156**
16. Reimbursables/Customer Contribution	$	$0	$	$	$	$	$	$	$0
PROJECT TOTAL (LESS REIMBURSABLES)	**$19**	**$156**	**$**	**$**	**$**	**$**	**$**	**$**	**$156**
O&M	$	$	$	$	$	$	$	$	$0
TOTAL REQUEST	**$19**	**$156**	**$**	**$**	**$**	**$**	**$**	**$**	**$156**

Detail other costs, project risk items and their allocations:

Risk	Allocation
1. *N/A – The project is completed.*	$
2.	$
3.	$
4.	$
5.	$
Total	$0

Explain unique payment provisions, if applicable:

N/A

Identify and detail any unique O&M impacts resulting from this project:

N/A

[3] TECHNICAL JUSTIFICATION

Project Need, Objective and Justification

In 2017, it was identified by Engineering that the 1G-4X transformer at the [redacted] required remote controlled DSCADA voltage reduction capability. This new capability allows the Eversource SOC to [redacted]

Additional work was completed in 2018 at the [redacted] that included replacing load tap changer (LTC) controls and adding DSCADA capabilities to LTC transformers 1G-1X, 1G-2X, and 1G-3X under DSN22023, DSN62007 and DSN62011 respectively. Those projects are closed, completed, and those work orders have a zero balance.

Work order DSN72004 for the transformer 1G-4X work exceeded the APS-01 limits. Accordingly, this is the justification for this full funding PAF to journal those charges to project CS00590. Note that this work predates the DSCADA Voltage Reduction Program (CS00407), which was therefore not available as a funding source in 2017-2018.

Only the Transformer [redacted] required DSCADA capability to be installed to match the other completed DSCADA work at the station. The DSCADA voltage reduction capability added by DSN72004 on transformer [redacted] completes the remote voltage lowering capability for the entire station.

Eversource CT is required by ISO-NE to have the capability to rapidly lower system voltage to respond to transmission contingencies. With the work completed under DSN72004, [redacted] will be able to meet the requirements of ISO-NE Operating Procedure No. 13 – "Standards for Voltage Reduction and Load Shedding Capability". Accordingly, this PAF completes the unfinished task of funding the DSCADA construction expenses to a station specific project for transformer [redacted]

Project Scope

The scope of this project was to furnish and install a DSCADA remote controlled Transformer Load Tap Changer (LTC) voltage reduction System on the [redacted] transformer. This new installation provides the SOC with the ability to remotely raise/lower the voltage at the [redacted] LTC in addition to being able to lower the voltage on all LTCs as a group. The new DSCADA controlled LTC Voltage Reduction System provides the capability to remotely reduce the voltage by 5% during system contingencies to help stabilize the system. Although the DSCADA Program CS00407 (see references) did not exist at the time of this installation at the South End [redacted] transformer, the same technology specified in the CS00407 DSCADA Program for CT was employed in this instance. This installation required a weather resistant DSCADA cabinet mounted on the 1G-4X transformer with an SEL Axion™ Modell 2240 RTAC and compatible

Beckwith™ M-2001D LTC controller. A signed copy of the TD-707 form is included as Attachment B.

[4] ALTERNATIVES CONSIDERED

There were no alternatives considered at the time (in 2017). There was no remote voltage lowering capability for the [redacted] transformer prior to initiation of WO DSN72004. The only operational procedure to [redacted] at the [redacted] transformer would require human intervention (an on-site a technician) at the station to manually lower the tap changer. This option was not considered as that situation would not permit rapidly lowering system voltage when required by ISO-NE Operating Procedure No. 13.

While not installing a DSCADA capability is a no cost option in the short-term, the absence of any remote lowering capability at the [redacted] transformer would not meet ISO-NE Procedure No.13 requirements to effectively and rapidly lower system voltage. Compliance with the voltage reduction program is mandatory during emergencies and contingencies as determined by ISO-NE.

[5] PROJECT SCHEDULE

Milestone	Scheduled Completion Date
IFR Approval (WO Initiation)	January 2017
SDC Approval (for applicable projects)	N/A
Conversion of Tx development costs, 183 to 107 (applicable to projects that require SSF approval and/or ISO preferred alternative selection)	N/A
EPAC Partial Funding Approval (for applicable projects)	N/A
Preliminary Design Completion (or latest pre-full funding design phase)	N/A
EPAC Full Funding Approval	September 2022
Siting Approval (for applicable projects)	N/A
Start of Construction	December 29, 2017
Project In-Service Date (ISD)	December 18, 2018
Project Need Date (for applicable projects)	
ISO Related Milestones: (for applicable projects)	
• ISO Preferred Alternative Selected	N/A
• PAC Presentation	N/A
• TCA Submittal	N/A

[6] REGULATORY APPROVALS

N/A – The project has been completed.

[7] Risk and Risk Mitigation Plans

Contingency:

N/A - The project has been completed.

Risk Mitigation: The project has been completed and there are no outstanding risks.

Risk	Mitigation
1. N/A	
2.	
3.	
4.	
5.	

[8] References

References
1. Work Order DSN72004 01/12/2017
2. APS01 Project Authorization Policy – Eversource 12-21-2021
3. CS00407 - DSCADA LTC Receivers Prgm Upgrades - Prgm Level Initial Funding - PAF
4.
5.

[9] Attachments (One-Line Diagrams, Images, etc.)

Attachment	Included in Submittal?
A. Attachment A - DSN72004 Power Plan Balance Analysis	*YES*
B. Attachment B - TD-707 DSAN72004	*YES*
C. Attachment C - [redacted] Nomenclature	*YES*
D.	

Project Checklist - Transmission & Substation Capital Project			
Project Name: [redacted] **DSCADA Receiver Installation**		**Project Number: CS00590**	
Facility Type: ☐BPS ☐BES ☐PTF ☐PTF non-regional ☐non-PTF ☐CIP ☒Distribution ☐General Plant			
PLANNING			
Is a NX-9 required?	No		
Is an ISO-NE PAC presentation required?	No		
ISO-NE Presentation Date (if completed):	Enter Date		
Cost in ISO-NE Presentation ($M) (if completed):	Enter Cost ($M)		
Is a PPA required?	No		
ISO-NE Approval Date (if completed):	Enter Date		
Is a TCA Application Required?	No		
TCA Submittal Date (if submitted):	Enter Date		
Cost in TCA Submittal ($M) (if submitted):	Enter Cost ($M)		
Enter ISO-NE RSP / Asset Condition ID, if assigned:	Enter ISO-NE ID		
PLANNING/PROTECTION & CONTROLS			
Are RAS/SPS/UVLs affected?	No		
OPERATIONS			
Outage Required?	☐ Primary Equipment (Power Transfer)	☐ Secondary Equipment (P&C only)	☒ Outage Not Required
Do SCLL Conditions Exist?	No		
Has an outage schedule been approved?	NR		
Are Operations & Maintenance procedures/training required?	No		
STANDARDS			
Does the project include standard equipment and designs?	Yes		
SUBSTATION ENGINEERING			
Does this impact Revenue Metering	No		
Is preliminary short circuit/ breaker duty analysis required?	No		
Are there any changes to the baseline audible noise?	No		
Is there an impact to the existing ground grid?	No		
Is a Transient Over Voltage (TOV) analysis required?	No		

Project Checklist - Transmission & Substation Capital Project	
Project Name: [redacted] DSCADA Receiver Installation	**Project Number:CS00590**

P&C ENGINEERING	
OP-22 - Are PMUs and DDR required?	No
If BPS, is an NPCC Directory #4 presentation required?	No
Are ISO-NE OP-24 Appendix B updates necessary?	No
TRANSMISSION LINE ENGINEERING	
Are there any changes that affect the baseline EMF?	No
Are there any changes that affect the baseline EMI?	No
SITING	
Is a Siting filing required? *(If yes, list in regulatory approvals section)*	No
PERMITTING	
Is there any permitting required? *(If yes, list in regulatory approvals section)*	No
PROJECT SERVICES (OUTREACH) and ROW WORK COORDINATION	
What is the level of outreach expected?	None
Is any part of this project in an Environmental Justice Community?	No
Has ROW Coordination reviewed this project?	No
Is this project coordinating with other existing scheduled work?	No
INITIATOR	
Has a field constructability review been completed?	NR
INVESTMENT RECOVERY	
Does the project require development of an Investment Recovery plan?	No
COST ESTIMATING	
What team/firm prepared the cost estimate?*	Other (specify below)
Name of the person who prepared the estimate:	Actuals
Was the estimate reviewed by Eversource Estimating?	No

Row Labels	Sum of Amount	
E14: Mileage	**129.64**	other
2EV - Dist Station Construction	129.64	
L11: Labor Straight Time Exempt	**11197.43**	
23B - CT Distribution SCADA	2843.13	eng
2EV - Dist Station Construction	7390.64	const
3F1 - SS Eng + Design - CL+P D	963.66	eng
L12: Labor Straight Time Non-Exempt	**4500.36**	
23B - CT Distribution SCADA	256.29	eng
2EV - Dist Station Construction	689.12	const
3F1 - SS Eng + Design - CL+P D	2403.67	eng
3W4 - Station Ops Stamford	1151.28	const
L22: Labor Overtime Non-Exempt	**708.08**	
2EV - Dist Station Construction	64.62	const
3F1 - SS Eng + Design - CL+P D	535.32	eng
3W4 - Station Ops Stamford	108.14	const
M12: Materials- Stores	**11596.78**	material
2EV - Dist Station Construction	81.99	
4JK - D Mat Acq CL+P	11514.79	
S16: Engineering Design Services	**7923.5**	eng
3G1 - Dist Eng + Design - CL+P D	899.5	
4JK - D Mat Acq CL+P	7024	
S47: Contractor- Unit Price	**4559.02**	const
2EV - Dist Station Construction	4559.02	
S49: Contractor Labor	**97146.5**	
2EV - Dist Station Construction	60851.22	const
3K1 - Substation Tech Eng - CT D	36295.28	test
S75: Refuse Removal and Recycling	**478**	other
2EV - Dist Station Construction	478	
U08: UVL-Contractor Labor	**0**	
2EV - Dist Station Construction	0	
ZAS: Admin and Eng OH- Acct Use Only	**781.57**	ind
23B - CT Distribution SCADA	30.38	
2EV - Dist Station Construction	395.04	
3F1 - SS Eng + Design - CL+P D	52.35	
3G1 - Dist Eng + Design - CL+P D	9	
3K1 - Substation Tech Eng - CT D	181.47	
3W4 - Station Ops Stamford	9.94	
4JK - D Mat Acq CL+P	103.39	
ZGS: Gen Ser Co Benefit Loader- Acct Use Only	**5592.91**	ind
23B - CT Distribution SCADA	2456.89	
3F1 - SS Eng + Design - CL+P D	3136.02	
ZNP: Non Productive Time Loader- Acct Use Only	**2407.91**	ind
23B - CT Distribution SCADA	520.55	
2EV - Dist Station Construction	1040.94	
3F1 - SS Eng + Design - CL+P D	688.99	
3W4 - Station Ops Stamford	157.43	
ZPB: Payroll Benefit Loader- Acct Use Only	**4276.92**	ind
2EV - Dist Station Construction	3705.37	
3W4 - Station Ops Stamford	571.55	
ZSC: Service Company Allocations- Acct Use Only	**-2.13163E-14**	ind
308 - Eliminations	-2.13163E-14	
ZST: Stores Loader- Acct Use Only	**2157.1**	ind
2EV - Dist Station Construction	18.16	
4JK - D Mat Acq CL+P	2138.94	
ZVE: Vehicle Costs Clearing- Acct Use Only	**1887.59**	ind
23B - CT Distribution SCADA	330.4	
2EV - Dist Station Construction	1324.78	
3F1 - SS Eng + Design - CL+P D	91.89	
3W4 - Station Ops Stamford	140.52	
(blank)		
(blank)		
Grand Total	**155343.31**	

Summary	Expense	Rounded
eng	14925.57	15000
material	11596.78	12000
const	74814.04	75000
test	36295.28	36000
other	607.64	1000
ind	17104	17000
afudc	0	0
	155343.3	156000

Attachment 2
Turnover of Substation Electrical Equipment Memo CT

(Sheet 1of 1)

To: Manager – CONVEX Operations
Manager – CT System Operations
Manager – CT Substation Operations (East, Central or West as applicable)
Manager – Transmission Substation Const. & Mntc. – CT
Manager – Distribution Substation Engineering and Design
Supervisor – CT Regional Test (East, Central or West as applicable)
Supervisor – Distribution Substation Construction
Supervisor – T&D Maintenance (DSSE)
Project Engineer [redacted]
Administrator – Distribution Maintenance
Administrator – Transmission Maintenance

From: John Simeone

Signed: [redacted] Date: 12/20/18

Substation: [redacted] CT.

Project Number: DSN22023, DSN62007, DSN62011, DSN72004

Project Title: [redacted] Replace failing LTC controls and add DSCADA [redacted]

Add DSCADA only [redacted]

Project Manager: [redacted]

Equipment Included in this Turnover: LTC Upgrade and DSCADA

In-Service Date: 12/18/2018

Project Checklist		**Comments**
Testing Complete?	Yes [x] No [ ] N/A [ ]	
CONVEX OI Issued?	Yes [x] No [ ] N/A [ ]	
SOC OI Issued?	Yes [x] No [ ] N/A [ ]	
Equipment Nomenclated and Verified w/Nomenclature Diagram.	Yes [x] No [ ] N/A [ ]	
Orientation Meeting Held?	Yes [ ] No [ ] N/A [x]	
Training Complete?	Yes [ ] No [ ] N/A [x] Date:_____	
Vendor Manuals Distributed?	Yes [x] No [ ] N/A [ ]	
System Change Notice Initiated?	Yes [ ] No [ ] N/A [x]	
Cascade Update Initiated?	Yes [ ] No [ ] N/A [x] Date:_____	
As-Builts Submitted to Eng?	Yes [x] No [ ] N/A [ ] Date:12/20/2018	

Note – If any exceptions/discrepancies' noted following a review by local supervision refer to section 2.1.1.d for resolution.

[redacted]