EVERSOURCE

Operations Project Authorization Form

Approved on October 13, 2022 EPAC

Link to Meeting Minutes

Project Title: [redacted] - Replace Battery Bank and Float Charger	**Project Number: CS00638**
Date Prepared: 09/23/2022	**Company: Eversource CT**
Organization: Asset Management	**Class(es) of Plant: D SS**
Project Initiator: [redacted]	**Project Category: Stations - Batteries**
Managing Organization: Engineering	**Schedule ID#: N/A**
Project Manager: N/A	**Project Type: Specific**
Project Sponsor: [redacted]	**Capital Investment part of original Op Plan: Yes**
Estimated in service date: July 16, 2021	**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:Total Capital Request: $202K	**Authorization Type: Full Funding**

[1] Executive Summary

This project is seeking full funding of $202K for a project completed in 2021 at the [redacted], CT. The 130-volt station battery bank and float charger system tests in May 2019 indicated that specific gravity measurement variances cell to cell and [redacted] No battery cart was required, and the battery and float charger system replacement were determined best to require the complete battery system replacement. Work was completed and placed in-service per TD-707 on July 16, 2021, under annual Work Order (WO) #DSQ92029. This station specific Project Authorization Form (PAF) provides documentation to facilitate the transfer of charges incurred under the annual WO to project number CS00638. The charges to the annual budget exceeded the $100K work order threshold value imposed by Eversource Project Authorization Policy APS01. Upon approval of this FF PAF, charges to the Annuals Budget can be journaled to CS00638.

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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	$	$	$	$	$	$	$	$	$
2. Environmental Approvals / Permits	$	$	$	$	$	$	$	$	$
3. Outreach	$	$	$	$	$	$	$	$	$
4. Siting Approvals / Permits	$	$	$	$	$	$	$	$	$
5. Engineering / Design	$	$6	$	$	$	$	$	$	$6
6. Materials (Eversource purchased)	$	$23	$	$	$	$	$	$	$23
7. Construction (incl matl's by contractors)	$	$49	$	$	$	$	$	$	$49
8. Testing / Commissioning	$	$11	$	$	$	$	$	$	$11
9. Project Mgmt Team	$	$	$	$	$	$	$	$	$
10. Removals	$	$	$	$	$	$	$	$	$
11. *Other	$	$17	$	$	$	$	$	$	$17
12. Risks	$	$	$	$	$	$	$	$	$
SUBTOTAL DIRECTS W/ RISKS	**$0.1**	**$106**	**$**	**$**	**$**	**$**	**$**	**$**	**$106**
13. Indirects/Overhead	$	$96	$	$	$	$	$	$	$96
14. AFUDC	$	$0	$	$	$	$	$	$	$
PROJECT TOTAL – BASELINE BUDGET	**$0.1**	**$202**	**$**	**$**	**$**	**$**	**$**	**$**	**$202**
15. Contingency	$	$0	$	$	$	$	$	$	$0
TOTAL CAPITAL REQUEST	**$0.1**	**$202**	**$**	**$**	**$**	**$**	**$**	**$**	**$202**
16. Reimbursables/Customer Contribution	$	$0	$	$	$	$	$	$	$0
PROJECT TOTAL (LESS REIMBURSABLES)	**$0.1**	**$202**	**$**	**$**	**$**	**$**	**$**	**$**	**$202**
O&M	$	$0	$	$	$	$	$	$	$
TOTAL REQUEST	**$0.1**	**$202**	**$**	**$**	**$**	**$**	**$**	**$**	**$202**

*Other – Equipment rentals and mileage

Detail other costs, project risk items and their allocations:

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

A cost analysis spreadsheet "Attachment A - DSQ92029 Charges Analysis Breakdown 09212022", was created for this PAF. Power Plan financial data for WO #DSQ92029.is contained in Sheet #1. Sheet #2 has the Summary of the actual expenditures use to populate the Project Costs Summary table.

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

The battery plant at the [redacted] indicated a weak cell test in the Spring of 2019. The [redacted] The 14-year-old battery bank and float charger were installed in January 2005 and [redacted]. The recommended solution was to replace the battery bank and the float charger with a unit of modern design Battery monitoring was requested for inclusion during the replacements, however the battery monitor was not installed at the time. See Attachment B for the station one-line.

Project Scope

This project replaced the failing 130 VDC battery bank and associated float charger at the [redacted]. Eversource Engineering selected the Hoppecke™ brand OPS HC

series stationary lead-acid battery product to replace the failing battery bank. The storage capacity of the new 130-volt battery bank is 287 ampere-hours @25 degrees C. Additionally, a Hoppecke™ Model AT10130025S Series 130 volts 25 ampere Float Charger was installed to replace the existing charger. The new float charger has circuitry that maintains the battery bank float voltage with features to prevent battery overcharging or undercharging. [redacted] The installation included commissioning and load testing to ensure that the new installation aligns with Eversource construction standards and practices.

Substation Equipment

Station	Device Position / Nomenclature	Device Removals *include manufacturer*	Device Additions *include manufacturer*
[redacted]	[redacted]		
[redacted]			

[4] ALTERNATIVES CONSIDERED

An alternative would have been to allow the battery system to remain in place . This would have [redacted]. The alternative to take no action was not a recommended choice under the circumstances. The DC battery system and float charger [redacted]. [redacted]. Therefore, the battery bank was replaced.

Another alternative would have replaced only the weak cell. This was not a prudent option due to the [redacted]

[5] PROJECT SCHEDULE

Milestone	Scheduled Completion Date
IFR Approval (WO Initiation)	May 16, 2019
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	October 2022
Siting Approval (for applicable projects)	N/A
Start of Construction	October 31, 2019
Project In-Service Date (ISD)	December 10, 2021
Project Need Date (for applicable projects)	N/A
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:

The Project has been completed.

Risk Mitigation:

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

Risk	Mitigation
1.	
2.	
3.	
4.	
5.	

[8] References

References
1. APS01 Project Authorization Policy – Eversource 12-21-2021
2. Hoppecke grid_power_vm_battery_brochure_us
3. WO #DSQ92029 – [redacted] Replace Failed Battery and Charger
4.
5.

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

Attachment	Included in Submittal?
A. DSQ92029 Charges Analysis Breakdown 09212022	*YES*
B. [redacted] One-Line	*YES*

Project Checklist - Transmission & Substation Capital Project			
Project Name: [redacted] - Replace Failed Battery and Float Charger		**Project Number: CS00638**	
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):		NA	
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	
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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:	Costs based on Actuals
Was the estimate reviewed by Eversource Estimating?	No

Row Labels	Sum of Amount	Allocation
E13: Meals	**20**	other
2EV - Dist Station Construction	20	
E14: Mileage	**5112.55**	other
2EV - Dist Station Construction	5037.73	
3F1 - SS Eng + Design - CL+P D	74.82	
J17: Rent Expense-External	**11992.58**	other
153 - Dist General Construction	1632.42	
2EV - Dist Station Construction	10360.16	
L11: Labor Straight Time Exempt	**1198.17**	
2EV - Dist Station Construction	1198.17	const
L12: Labor Straight Time Non-Exempt	**60041.71**	
154 - Station Electricians Other	369.64	const
2BT - Station Ops Norwlk	8332.66	const
2EV - Dist Station Construction	35693.7	const
2NH - Station Ops East Hampton	781.6	const
3F1 - SS Eng + Design - CL+P D	2402.31	eng
3JC - Field Engineering-CT Distribution	11121.16	test
3W4 - Station Ops Stamford	1340.64	const
L22: Labor Overtime Non-Exempt	**579.09**	
2BT - Station Ops Norwlk	163.07	const
2EV - Dist Station Construction	179.44	const
3F1 - SS Eng + Design - CL+P D	208.65	eng
3W4 - Station Ops Stamford	27.93	const
L42: Labor Premium and Special Non-Exempt	**53.84**	
2EV - Dist Station Construction	53.84	const
M11: Materials- Purchased	**1201.11**	material
2EV - Dist Station Construction	1201.11	
M12: Materials- Stores	**21573.48**	material
4JK - D Mat Acq CL+P	21573.48	
M15: Material Salvage	**-208.2**	material
2EV - Dist Station Construction	-208.2	
S16: Engineering Design Services	**3002.5**	
2EV - Dist Station Construction	562.5	const
3F1 - SS Eng + Design - CL+P D	2440	eng
S49: Contractor Labor	**1033.9**	
3F1 - SS Eng + Design - CL+P D	1033.9	eng
ZAS: Admin and Eng OH- Acct Use Only	**2343.9**	ind
153 - Dist General Construction	16.32	
154 - Station Electricians Other	8.83	
2BT - Station Ops Norwlk	202.89	
2EV - Dist Station Construction	1350.75	
2NH - Station Ops East Hampton	6.53	
3F1 - SS Eng + Design - CL+P D	102.3	
3JC - Field Engineering-CT Distribution	319.91	
3W4 - Station Ops Stamford	32.69	
4JK - D Mat Acq CL+P	303.68	
ZEB: Alloc- E+S OH Subst- Acct Use Only	**33708.66**	ind
154 - Station Electricians Other	241.85	
2BT - Station Ops Norwlk	5558.55	
2EV - Dist Station Construction	19734.06	
3F1 - SS Eng + Design - CL+P D	1200.41	
3JC - Field Engineering-CT Distribution	6078.37	
3W4 - Station Ops Stamford	895.42	
ZGS: Gen Ser Co Benefit Loader- Acct Use Only	**2306.07**	ind
3F1 - SS Eng + Design - CL+P D	2306.07	
ZMI: Misc Dist Exp Capitalized OH-Acct Use Only	**5244.65**	ind
154 - Station Electricians Other	36.28	
2BT - Station Ops Norwlk	833.79	
2EV - Dist Station Construction	3089.52	
3F1 - SS Eng + Design - CL+P D	212.41	
3JC - Field Engineering-CT Distribution	938.34	
3W4 - Station Ops Stamford	134.31	
ZNP: Non Productive Time Loader- Acct Use Only	**9028.14**	ind
154 - Station Electricians Other	53.53	
2BT - Station Ops Norwlk	1230.18	
2EV - Dist Station Construction	5371.4	
2NH - Station Ops East Hampton	107.71	
3F1 - SS Eng + Design - CL+P D	455.73	
3JC - Field Engineering-CT Distribution	1611.42	
3W4 - Station Ops Stamford	198.17	
ZPB: Payroll Benefit Loader- Acct Use Only	**29154.64**	ind
154 - Station Electricians Other	181.45	
2BT - Station Ops Norwlk	4170.48	
2EV - Dist Station Construction	18250.27	
2NH - Station Ops East Hampton	416.56	
3JC - Field Engineering-CT Distribution	5464.06	
3W4 - Station Ops Stamford	671.82	
ZSC: Service Company Allocations- Acct Use Only	**0**	ind
308 - Eliminations	0	
ZST: Stores Loader- Acct Use Only	**3384.91**	ind
4JK - D Mat Acq CL+P	3384.91	
ZVE: Vehicle Costs Clearing- Acct Use Only	**10803.31**	ind
154 - Station Electricians Other	69.33	
2BT - Station Ops Norwlk	1341.23	
2EV - Dist Station Construction	7246.52	
2NH - Station Ops East Hampton	85.8	
3F1 - SS Eng + Design - CL+P D	28.36	
3JC - Field Engineering-CT Distribution	1825.31	
3W4 - Station Ops Stamford	206.76	
(blank)		
(blank)		
Grand Total	**201575.01**	

Summary	
ENG	6084.86
Material	22566.39
Const	48703.19
Test	11121.16
Other	17125.13
Indirects	95974.28
AFUDC	0
	201575

[redacted]