Operations Project Authorization Form

Project Title: New Windsor SOC IT and AV Equipment	**Project Number:**
Date Prepared: 07/05/2023	**Company:** Eversource CT
Organization: Electric System Operations	**Class(es) of Plant:** Other
Project Initiator: [redacted]	**Project Category:** Control Center - General
Project Manager: [redacted]	**Project Type:** Specific
Project Sponsor: [redacted]	**Capital Investment part of original Operating Plan:** No
Estimated in service date: 10/31/2024	**Emergency Related Request?** No
Eng./Constr. Resources Budgeted? Yes	**Facility Type** (check all that apply)**:** ☐ PTF ☐ non-PTF ☒ Distribution
Total Gross Capital Request: $19,994,000	**Authorization Type:** Full Funding

Executive Summary

A project authorization for $19,994,000 is being requested to fund the IT Scope of Work to support the [redacted] The new [redacted] to support a physical layout and system visualization tools that encourage communication and visibility between desks. This model has been identified as an industry best practice. Once constructed, the new [redacted] will improve our operational efficiency, meeting NERC-CIP best practices. The audio and video display systems will increase operational awareness and efficiencies to include a Human Performance centric design needed to operate the modern distribution system and the distribution grid of the future. Additionally, the video wall display boards will enhance overall awareness by leveraging current and new graphical user interfaces as they become available; this will enhance operations ability to assess and analyze system events. This PAF scope of work includes the purchase, installation, and configuration of Computer, Audio-Visual, and KVM (Keyboard, Video, and Mouse) equipment which must be purchased to outfit the SOC with technology needed for system operations.

Project Costs Summary

See APS3 and APS8 requirements and consult with Plant Accounting for capital/O&M determination. Use published loaders for benefits, materials, and invoices, maintained by the Director, Budget and Internal Reporting.
Note: Dollar values are in thousands

Capital Costs	Year 2023	Year 2024	Year 20__+	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	$100.0	$300.0		$400.0
Outside Services	$220.0	$1,180.0		$1,400.0
Materials	$1,350.0	$12,500.0		$13,850.0
Removals				
Risk and Contingency	$334.0	$2,671.0		$3,005.0

Other				
Subtotal – Direct Costs	$ 2,004.0	$ 16,651.0		$ 18,655.0
Indirect Capital Costs				
Indirect/Overheads (including benefits)	$ 100.0	$ 300.0		$ 400.0
Capitalized interest or AFUDC, if any	$ 100.2	$ 838.8		$ 939.0
Subtotal – Indirect Costs	$ 200.2	$ 1,138.8		$ 1,339.0
Total Gross Capital Costs				
Customer Contribution				
Total Net Capital Project Costs	**$ 2,204.2**	**$ 17,789.8**		**$ 19,994.0**

Technical Justification:

Project Need, Objective and Justification

As part of the new [redacted], IT and AV equipment must be designed, purchased, and installed to outfit the SOC with the technology needed for system operations. The IT and AV solution will include rack mounted PCs in a Server Room, a KVM system along with an Audio Visual (AV) display system throughout the Control Center.

The new [redacted] to support a physical layout and system visualization tools that encourage communication and visibility between desks. This model has been identified as an industry best practice. Once constructed, the new Windsor SOC will improve our operational efficiency, meeting NERC-CIP best practices. The audio and video display systems will increase operational awareness and efficiencies to include a Human Performance centric design needed to operate the modern distribution system and the distribution grid of the future. Additionally, the video wall display boards will enhance overall awareness by leveraging current and new graphical user interfaces as they become available; this will enhance operations ability to assess and analyze system events.

Business and operational benefits include:

- The audio-visual display systems will allow SOC personnel to have situational awareness to be able to use wall board displays to monitor system conditions such as weather, outages, etc.
- Video and display walls will allow Engineers the ability to visualize and monitor critical applications needed to operate the grid of the future
- Eliminate computer devices from the control room and support spaces and locate them in the Server Room. This allows Eversource to manage the computer devices in a controlled environment and users will have less keyboards/mics on the countertop. Additionally, having computer devices in the Server room will minimize any interference in the SOC Control Rm and support spaces should PC servicing be required.
- The KVM system will allow users to access a pool of computer devices that are restricted by administrators.

- The KVM system will allow monitors at the supervisor and manager positions that can be shared to video only VDS (Video Distribution System) receivers which are used as sources for video walls
- The KVM system will allow SOC personnel to be able to easily and seamlessly access or switch between multiple computer sources for the operations of the SOC including switching modes between workstations designated for operations and training as appropriate.
- Ergonomic designed IT and AV displays to reduce operator fatigue and eye strain
- Enhanced situational awareness with video wall boards and straight line of site over the operator work console
- Prepare the SOC for advanced applications such as ADMS (Advanced Distribution Management System), DERMS (Distributed Energy Resource Management System), AMI (Advanced Metering Infrastructure) and the applications associated with these real time operational tools.

Project Scope

The Project Scope of work includes:

- Design, supply, and install a complete KVM system for the SOC Control Room and support areas
- Design and supply only a complete Audio /Visual Display system for the SOC Control Room and support areas
- (3) 2x10 Video Wall Displays to support Control Room Situational
- (2) 2x4 Video Wall Displays to support Diagnostic and Optimization Groups
- (1) 2x6 Video Wall Display to support Coordinator and Switch Writing Group
- (1) 2x6 Video Wall Display to support Grid Management Group
- (1) 2x6 Video Wall Display to support Situation Conference Room
- (2) 2x6 Video Wall Display to support Training Simulator
- (16) Collaboration and Situation awareness Displays in the Offices, Conference Room, and Break Areas
- Purchase and installation of 147 Corporate Rack mounted PC’s
- Purchase and installation of 156 eECS (Enterprise Energy Control System) Class SCADA Rack mounted PC’s
- Purchase and installation of 48 Avtec Radio Consoles and associated PC’s
- Purchase and installation of 270 Dell 49” Curved Monitors

Background

The [redacted] will improve situational awareness and enhance reliability with quicker response time for outages.

Along with the renovation of the new [redacted], these technologies are required to improve the support and operations of the Distribution System in Connecticut. As the power system continues to evolve, these system changes will be necessary to allow for greater flexibility with system operations including the ability to process data in a visual manner.

Alternatives Considered:

Were alternative solutions considered/applicable? Include any cost/benefit analysis.

Alternatives were considered (please describe below)

One alternative that was considered was to not use rack-based PC equipment or a KVM system. This would require PCs at each operator console versus the centralized KVM system.

However, the operational considerations of mounting PCs at each user console creates issues when trying to perform maintenance and upgrades on hardware or software within the control room. Operator distractions and the impact on the "sterile cockpit" operating philosophy, is a main driver to proceed with the KVM and rack mounted PCs. Also, having a centralized system with KVM allows for enhanced security features that are not capable when deploying desktop-based PCs; this ensures stronger access controls to our SCADA system and ensures future regulatory compliance and alignment with industry best practices. Additionally, with the KVM solutions, operators will have the ability to select a different computer to work from in the event their existing one was to go down.

Based on the design details of the facility and the requirement for video wall displays, there was no alternative AV solution considered for the audio/visual component of this PAF. Eversource has AVISPL (Adtech) as its AV solutions provider.

Regulatory Approvals:

Are Regulatory body approvals needed for the project?
No

If yes, provide detailed regulatory approvals

Project Schedule

Milestone/Phase Name	Estimated Date
100% Engineering Completion	October 2023
Installation Start	June 2024 – July 2024
Testing/Commissioning	August 2024 – September 2024
In Service Date	October 2024

Risks and Risk Mitigation Plans

List top risks and mitigation plans associated with this project. Include any contingency related to each risk. (Permitting/siting; environmental; outage constraints; customer/community outreach; material delivery; constructability challenges; excavation; etc.)

Category	Risk	Mitigation
Overall Project Management	Lack of Scope control including unforeseen changes needed to modify existing building infrastructure	Lack of scope control is the leading cause of budget and schedule overruns for this scale of project. It will be critical to closely define the project scope and requirements through specifications and detailed drawings, quickly clarify any uncertainties as they arise, and escalate as required. Any significant changes in the project scope or requirements must be agreed to by the executive steering committee.
Schedule / Cost	Project completion target date is delayed which extends project schedule and increases the cost of the project.	The project will have a full-time Construction Manager, Owner's Representative, and internal Project Manager. Regular meetings will occur to review the project schedule and mitigate any potential delays.
Storm Event	Storm events may limit the turnaround in Business support in the event the business support is needed	Utilize vendors as part of the project to the extent available to ensure project is not impacted by Eversource employee storm response. Additionally, focus on completing work on or ahead of schedule when there is a requirement for an Eversource employee to perform or complete the work.
Supply Chain	Lead times for some of the IT and AV equipment may delay the project timeline	Closely monitor the vendor lead times and work with vendors if there are any anticipated delays. Order equipment as soon as possible to have on hand prior to construction completion

References

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

Reference appendices items in the appropriate section of the PAF and list items in the same order as referenced in the PAF

If the project has future financial benefits, please use the following table to provide the yearly amounts.

Financial Benefits	Year 20__	Year 20__	Year 20__	Year 20__
Capital				
O&M				
Other				
Total Financial Benefits				

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.