



RIVERSIDE PUBLIC UTILITIES

Board Memorandum

BOARD OF PUBLIC UTILITIES

DATE: JUNE 24, 2024

SUBJECT: BID NO. SUB-871 PROCUREMENT OF 15KV METALCLAD SWITCHGEAR WITH AVAIL SWITCHGEAR SYSTEMS OF FULTON, MO, IN THE AMOUNT OF \$2,561,551.88 AND INCREASE WORK ORDER NO. 2202776 FOR LA COLINA SUBSTATION IMPROVEMENT PROJECT BY \$2,900,000 FOR A TOTAL WORK ORDER OF \$5,400,000

ISSUES:

Award Bid No. Sub-871 for procurement of one 15KV Metalclad switchgear enclosure to Avail Switchgear Systems of Fulton, Missouri, in the amount of \$2,561,551.88; and increase Work Order No. 2202776 by \$2,900,000 for a total revised work order amount of \$5,400,000.

RECOMMENDATIONS:

That the Board of Public Utilities:

1. Award Bid No. SUB-871 for the procurement of one 15KV Metalclad Switchgear for La Colina Substation to Avail Switchgear Systems of Fulton, Missouri, in the amount of \$2,561,551.88;
2. Approve a 10% contingency or \$256,155 for Bid No. SUB-871;
3. Approve an increase to Work Order No. 2202776 in the amount of \$2,900,000, bringing the total Work Order amount from \$2,500,000 to \$5,400,000; and
4. Authorize the City Manager, or designee, to execute any documents necessary to effectuate the procurement described herein, as well as the ability to make minor non-substantive changes in alignment with all purchasing policies.

BACKGROUND:

Electrical Substations are essential hubs within the utility power grid, located throughout neighborhoods. Their primary role is to transform electricity from the high voltages used in sub-transmission lines to the lower voltages required for distribution to homes and businesses. Substations also house switching, control, protection, and monitoring equipment, ensuring the reliable and secure operation of the electric grid. Substation equipment is considered critical

infrastructure and should be replaced at the end of its service life to prevent failures that could disrupt power service to customers. This proactive replacement is essential to meet growing electricity demand, ensure safety, and improve the power system's reliability and safety.

One of the most critical and essential equipment in a substation is the 15kV switchgear. Switchgear units are large metal enclosures containing equipment that switches, controls, and protects distribution circuits and ensures safety to RPU workers and the public. Typical equipment inside the switchgear includes circuit breakers, protective relays, meters, auxiliary controls, and automation equipment. Their service cycle is between 40 to 50 years.

Switchgear replacement is expensive and lengthy due to their design requirements and the complexity of the manufacturing process. Failure of a single unit can significantly impact the electric system's reliability and the safety of employees and the public. Several of these pieces of equipment in the Riverside Public Utilities (RPU) system have exceeded or are reaching their design life.

La Colina Substation was first commissioned in 1965. It includes four (4) 66kV power transformers and four 15kV metal-clad switchgears. Most of the original equipment continues to operate today. Over the years, the La Colina Substation has faced several challenges due to the aging equipment. On December 17, 2010, the Board of Public Utilities approved an emergency purchase of Power Transformer No. 4 to replace the original unit upon irreparable failure. In the last two decades, switchgears have experienced several component failures and two arc flash incidents. Electrical apparatus housed in the switchgears, such as 15kV power circuit breakers, are no longer supported by manufacturers and replacements have resulted in expensive customized solutions. Other devices inside the switchgears, such as power system meters, equipment control and data acquisition units, protection relays, and ancillary material are legacy items that are scheduled for replacement as part of RPU's Switchgear Relay Upgrade Program.

The La Colina Substation Improvement Project, a crucial initiative by RPU, aims to replace all four (4) 15kV switchgears and four (4) 66kV power transformers in the station with two (2) higher capacity 66kV power transformers and two (2) 15kV metal-clad switchgears. This upgrade and modernization of equipment will significantly increase system reliability. Additionally, this project will equip the station with RPU's latest standards regarding electric system protection and substation automation systems for local and remote equipment control and power metering.

On November 14, 2022, the Board of Public Utilities (Board) approved Work Order No. 2202776 for the La Colina Substation Improvement Project for an initial capital expenditure of \$2,500,000 during Fiscal Year 2022/2023. The initial capital expenditure included the design, inspection, and fabrication of Power Transformer No. 1. The procurement at that time was made in anticipation of lead times longer as experienced by the industry in the last four years. As mentioned at that meeting on November 14, the costs for the associated switchgear will come back to the Board for approval. Staff are currently engaged with the vendor to review the design and monitor the timely manufacturing of this unit, which is scheduled to be delivered in the first quarter of 2026.



Typical Modern 15KV Metalclad Switchgear

DISCUSSION:

RPU is committed to providing safe and reliable electric service to all customers. Planned system improvements and equipment replacement are prudent and responsible measures to minimize the risk of prolonged power outages due to equipment failures and maximize system reliability and safety. As part of RPU’s effort to identify and replace aging infrastructure, RPU plans to continue the La Colina Substation Improvement Project during the next four (4) calendar years.

RPU Engineering staff will work with a consultant to perform the engineering design for this project. RPU field forces will perform the construction work, testing, and commissioning. To minimize the risks of field accidents, limit outages to customers, and improve construction efficacy, the project will be executed in two phases. Each phase will involve installing one transformer and one switchgear, with the first phase targeting Switchgear 1 and Transformer 1 in Fiscal Year 2025/26, and the second phase focusing on Switchgear 2 and Transformer 2 in Fiscal Year 2027/28. The second and final phase of the La Colina Substation Improvement Project is scheduled for completion by May 2028.

The La Colina Substation Improvement Project is a comprehensive, multi-year construction project. Additional expenses for contracted services, RPU staff costs, and materials necessary to complete the project will be return for approval at future meeting. The table below provides an estimated cost for the project.

Description of Work	Fiscal Year	Amount (\$)
Bid No. 7927 Fabrication/Delivery of Power Transformer No. 1	Approved on 11/14/2022	\$2,500,000
Bid No. 871: Procurement of 15kV Switchgear No. 1	Proposed on 6/24/24	\$2,900,000
Consultant Design Services Award Recommendation	Anticipated 2024/2025	\$8,550,000
Fabrication/Delivery of Power Transformer No. 2		
Fabrication/Delivery of Switchgear No. 2		
RPU Engineering (initial)		
RPU Engineering (final), Construction, Field Testing, Commissioning and Miscellaneous Material	Anticipated 2025/2026	\$6,550,000
Work Order Total		\$20,500,000

Work Order

At this time, staff are seeking Board approval for a \$2,900,000 Work Order increase, bringing the total work order authorization to \$5,400,000. The funding is necessary for procuring the fabrication/delivery of one 15KV switchgear enclosure.

The table below shows the breakdown for the work order amount increase requested at this time.

Work Order 220776 – La Colina Substation Improvement Project		Amount
Approved on November 22, 2022		\$2,500,000
Requested Work Order Increase		
Avail Switchgear Systems	\$2,561,552	
Contingency (10% of Switchgear Cost)	\$256,155	
RPU Staff – Project Management and Engineering	\$82,293	
Work Order Amount Requested	\$2,900,000	\$2,900,000
Revised Work Order Amount		\$5,400,000

Bid No. 871

On December 27, 2023, five (5) vendors were invited to submit bids in response to Bid No. SUB-871 for the furnishing of one 15kV switchgear through an informal procurement process. On February 13, 2024, three (3) vendors submitted proposals. Staff reviewed proposals and deemed Avail Switchgear Systems of Fulton, Missouri to be the lowest, responsive and responsible bidder. Delivery of this unit is scheduled for the first quarter of 2026.

The RFB notification is summarized in the following table:

RFB No. 871 Bidding Notification Summary Table

Action	Number of Vendors
Vendors Notified	5
Vendors Who Acknowledged the RFB	4
Questions and Answers Received	8
Addenda Submitted	5
Proposals Received	3

The bid results are summarized in the table below:

Vendors	City Location	Bid Amount	Rank
Avail Switchgear Systems	Fulton, MO	\$2,561,551.88	1
Crown Technical Systems	Fontana, CA	\$2,719,096.74	2
Myers Power Products	Ontario, CA	\$3,176,380.88	3
Easton	Greenwood, SC	No Response	N/A
RESA Power	Cerritos, CA	No Bid	N/A

➤ *Engineer's Estimate* \$2,600,000

The breakdown for Bid No. 871 for La Colina Substation Switchgear procurement capital expenditure Work Order No. 2202776 is as follows:

Project and Fiscal Breakdown				
Work Type:	Performed By:	Approved 11/14/2022	Proposed 6/24/2024	Total WO Estimated Amount (\$)
Project Management and Engineering	RPU Engineering Staff	\$82,000	\$82,293	\$164,293
Structural Analysis and Design	Consultant	\$45,000	\$0	\$45,000
Factory Acceptance Testing and Transformer Design Review	Consultant	\$48,000	\$0	\$48,000
Construction Testing and Commissioning	RPU Field Forces	\$222,000	\$0	\$222,000
Fabrication/Delivery of Transformer No. 1	Virginia Transformer Corporation	\$1,676,085	\$0	\$1,676,085
Fabrication/Delivery of Switchgear No. 1	Avail Switchgear Systems	\$0	\$2,561,552	\$2,561,552
Contingency (10%)	Virginia/Avail	\$167,000	\$256,155	\$423,155
Work Order Total:		\$2,500,000	\$2,900,000	\$5,400,000
Anticipated Start Date:				July 2024
Anticipated Completion Date:				November 2025

The purchase of the equipment and material is covered under Section 404 of Purchasing Resolution No. 24101. Section 404 specifies specialized equipment that is particular to the needs of the City’s Public Utilities Department and provides for acquisition through Informal Procurement if it appears to the Purchasing Manager to be in the best interest of the City.

The Purchasing Manager concurs that the recommended actions are in compliance with Purchasing Resolution No. 24101.

STRATEGIC PLAN ALIGNMENT:

This item contributes to Strategic Priority No. 6 Infrastructure, Mobility and Connectivity and Goal No. 6.2 – Maintain, protect, and improve assets and infrastructure within the City’s built environment to ensure and enhance reliability, resiliency, sustainability, and facilitate connectivity.

This item aligns with each of the five Cross-Cutting Threads as follows:

1. **Community Trust** – Planned replacement of deteriorating infrastructure with equipment that complies with current standards will improve safety and reliability of the electric system is a prudent and responsible action that helps build community trust and results in the greater public good. A collaborative and efficient approach has been used to replace the aging electric infrastructure to minimize potential disruptions to our customers during

construction.

2. **Equity** – The replacement of the substation transformers and switchgears has been established based on engineering planning and operational criteria, with equitable distribution of services to ensure every member of the community has equal access to share the benefits of community progress.
3. **Fiscal Responsibility** – This item represents fiscal responsibility by identifying and replacing aging infrastructure, providing optimal electrical system reliability, safety, and efficiency, and reducing potential equipment and system failures and overall operational costs. The lowest price for the replacement units and thereby the best value for RPU' s customers was ensured through a competitive bidding process.
4. **Innovation** – RPU is committed to identifying creative solutions to meet the needs of our community members, effectively and efficiently by providing innovative infrastructure improvements. The project will feature state-of-the-art Substation Automation Systems (SAS), relay protection for the 15kV systems, along with additional auxiliary control systems, adhering to the latest standards in the industry.
5. **Sustainability & Resiliency** – This project ensures that new substation transformers and switchgears provide grid modernization and reliability that is expected to last well into the future.

FISCAL IMPACT:

The fiscal impact of increasing the work order for this project to \$5,400,000 is \$2,900,000, Following City Council approval of the FY 2024-2026 biennial budget scheduled for the June 25, 2024, Council meeting, sufficient funds will be available in Public Utilities Substation Transformer Upgrade Capital Account No. 6130100-470632 for Fiscal Year 2024/2025.

Prepared by:	Daniel Honeyfield, Utilities Assistant General Manager/Energy Delivery
Approved by:	David A. Garcia, Interim Utilities General Manager
Certified as to availability of funds:	Kristie Thomas, Finance Director/Assistant Chief Financial Officer
Approved by:	Rafael Guzman, Assistant City Manager
Approved as to form:	Phaedra A. Norton, City Attorney

Attachments:

1. Project Site Map
2. Bid Award Recommendation
3. Presentation