

RIVERSIDE PUBLIC UTILITIES

Board Memorandum

BOARD OF PUBLIC UTILITIES

DATE: JUNE 25, 2018

ITEM NO: 12

SUBJECT: AWARD BID NO. RPU-7533 FOR MULTI-SUBSTATION TRANSFORMER UPGRADE AND RECONDITIONING PROJECT TO REINHAUSEN MANUFACTURING OF HUMBOLDT, TENNESSEE, IN THE AMOUNT OF \$1,873,580, AUTHORIZE A 15% CHANGE ORDER AUTHORITY IN THE AMOUNT OF \$281,037 FOR THE PROJECT; APPROVE WORK ORDER NO. 1822318 FOR \$3,082,617

ISSUES:

Award Bid No. RPU-7533 for Multi Substation Transformer Upgrade and Reconditioning Project to Reinhausen Manufacturing of Humboldt, Tennessee, in the amount of \$1,873,580, authorize a 15% change order authority in the amount of \$281,037 for the project, and approve the capital expenditure of \$3,082,617 for Work Order No. 1822318.

RECOMMENDATIONS:

That the Board of Public Utilities:

1. Award Bid No. RPU-7533 for the Multi Substation Transformer Upgrade and Reconditioning Project to Reinhausen Manufacturing of Humboldt, Tennessee, in the amount of \$1,873,580;
2. Authorize staff to issue change orders in an amount not to exceed 15% or \$281,037 of the Reinhausen Manufacturing contract; and
3. Approve Work Order No. 1822318 in the amount of \$ \$3,082,617.

BACKGROUND:

Substation power transformers (transformers) are essential components of the power grid. Transformers are critical to the reliability and optimum operation of the electric grid. A single substation transformer can provide power to more than 5,000 customers. As such, substation power transformers are critical assets in Riverside Public Utilities (RPU) electric system.

The average life of a transformer is approximately 40 years. The life of the transformers can be shortened substantially by various factors such as poor design, overloading for extended period of time, moisture intrusion, and poor maintenance practices. Planned transformer upgrades and reconditioning measures are required to optimize the life of transformers, reduce failures, extend the reliable life of transformers, and improve public and employee safety.

Transformers are one of the most important and expensive assets in RPU's electrical grid. A transformer failure can pose unsafe conditions, lead to extended outages for customers, and impose extraordinarily high costs on the utility.



Typical Substation Power Transformer

DISCUSSION:

RPU is committed to providing safe and reliable energy service for all customers. As part of RPU's effort to upgrade existing infrastructures, RPU identified 13 transformers located at six substations in need of upgrades and reconditioning. The scope and extent of transformers upgrade and reconditioning vary from one transformer to another based on the current physical condition and criticality of the transformer. The transformer's age, Dissolved Gas Analysis (DGA), inspection, and electrical testing were used to evaluate the condition of the transformers and determine which transformers are candidates for upgrade and reconditioning as opposed to complete replacement.

The scope of work includes replacing high voltage bushings, replacing oil in the transformer main tank and associated load tap changer (LTC), processing and degasifying insulating oil in main tank and LTC, re-gasketing transformers, installing maintenance-free breather units, replacing pressure relief devices, installing new gauges, performing electrical testing, oil screen testing, and DGA after the completion of the renovation work. In addition, new on-line condition monitoring devices will be installed on nine of these transformers. The online monitors will provide real-time information on the condition of the transformer which will improve operational efficiency, maintenance efforts, and reliability of the system. The online monitors will support implementing a condition-based maintenance program that will allow RPU to actively evaluate and manage the health condition of critical assets in order to perform maintenance only when needed and at the most opportune times.

The list of the transformers to be upgraded is as follows:

Substation Name	Transformer No.
Freeman	T1, T3 & T6
Harvey Lynn	T5
Riverside	AT1, T4 & T5
Orangecrest	T1 & T2
Springs	T1 & T2
University	T3 & T4

Request for formal Bid No. RPU-7533 was posted on March 30, 2018, and closed on April 28, 2018. Three vendors submitted bids. Staff evaluated the bids and deemed Reinhausen Manufacturing of Humboldt, Tennessee to be the lowest responsive and responsible bidder. The Purchasing Department and RPU staff deemed the other two bidders non-responsive due to failure to provide proper bid documents such as Contractor License A, DIR registration number, and IRAN Affidavit.

The proposals are summarized in the table below:

Vendors	Location	Bid Amount	Evaluation
1. Reinhausen Manufacturing	Humboldt, TN	\$1,873,580	Lowest Responsive and Responsible Bidder
2. Isberg & Association/SPX	Pleasanton, CA		Non-Responsive
3. Delta Star, Inc.	San Carlos, CA		Non-Responsive

➤ Engineer's Estimate \$2,000,000.00

The project breakdown is proposed as follows:

Project Breakdown	
Engineering Performed By:	RPU Engineering Staff
Electrical Work Performed By:	Contactior
Inspection and Supervision	RPU Field Forces
Electrical Testing and Commissioning	RPU Field Forces
Anticipated Start Date:	October 2019
Anticipated Duration:	8 Months

The Purchasing Manager concurs that the recommended action complies with Purchasing Resolution No. 23256.

The breakdown of the total capital expenditure as follows:

Description	Amount (\$)
Reinhausen Contract	\$1,873,580
Reinhausen Change Order Authority (15%)	\$281,037
Engineering and Project Management	\$208,000
Inspection and QEW Services	\$512,000
SCADA & ODMS Integration and Commissioning	\$208,000
Total	\$3,082,617

Staff is requesting a 15% (\$281,037) change order authority for the Reinhausen Contract due to the unknown internal condition of each substation transformer. These transformers are approximately in the middle of their lifespan, they have been sealed since being placed in service and this will be the first physical internal inspection in 20 years.

FISCAL IMPACT:

The total fiscal impact is \$3,082,617. Sufficient funds are available in Public Utilities Substation Transformer Additions Capital Account No. 6130000-470632.

Prepared by: George R. Hanson, Utilities Assistant General Manager/Energy Delivery
Approved by: Todd L. Jorgenson, Interim Utilities General Manager
Approved by: Al Zelinka, City Manager
Approved as to form: Gary G. Geuss, City Attorney
Certifies availability
of funds: Laura M. Nomura, Utilities Assistant General Manager/Finance & Administration

Attachments:

1. Award Recommendation
2. Presentation

