

# RIVERSIDE PUBLIC UTILITIES

## Board Memorandum

**BOARD OF PUBLIC UTILITIES**

**DATE:** MARCH 11, 2019

**ITEM NO:** 10

**SUBJECT:** AGREEMENT IN RESPONSE TO REQUEST FOR PROPOSAL NO. 1882 FOR SELECTIVE CATALYTIC REDUCTION MAINTENANCE ON RIVERSIDE ENERGY RESOURCE CENTER UNITS 1 AND 2 WITH CORMETECH, INC. FOR \$202,865; AGREEMENT IN RESPONSE TO REQUEST FOR PROPOSAL NO. 1883 FOR CARBON MONOXIDE CATALYST REPLACEMENTS ON RIVERSIDE ENERGY RESOURCE CENTER UNITS 1 AND 2 WITH CORMETECH, INC. FOR \$561,195; AND WORK ORDER NO 1917240 FOR RIVERSIDE ENERGY RESOURCE CENTER CATALYST PROJECTS FOR \$835,865

**ISSUES:**

Approve an Agreement for Selective Catalytic Reduction Maintenance and Turnkey Installation Services for the Riverside Energy Resource Center Units 1 and 2 in response to Request for Proposal No. 1882 with Cormetech, Inc., of Durham, North Carolina for \$202,865; approve an Agreement for Carbon Monoxide Catalyst Replacement and Turnkey Installation Services for the Riverside Energy Resource Center Units 1 and 2 in response to Request for Proposal No. 1883 with Cormetech, Inc., of Durham, North Carolina for \$561,195; and approve Work Order No. 1917240 for the Riverside Energy Resource Center Catalyst Projects for 835,865.

**RECOMMENDATIONS:**

That the Board of Public Utilities:

1. Approve an Agreement for Selective Catalytic Reduction Maintenance and Turnkey Installation Services for the Riverside Energy Resource Center Units 1 and 2 in response to Request for Proposal No. 1882 with Cormetech, Inc., of Durham, North Carolina for \$202,865;
2. Approve an Agreement for Carbon Monoxide Catalyst Replacement and Turnkey Installation Services for the Riverside Energy Resource Center Units 1 and 2 in response to Request for Proposal No. 1883 with Cormetech, Inc., of Durham, North Carolina for \$561,195;
3. Approve Work Order No. 1917240 for work associated with the Riverside Energy Resource Center Catalyst Projects in a total amount of \$835,865; and
4. Authorize the City Manager, or designee, to execute all documents pursuant to the Agreements with Cormetech, Inc. and any other documents as necessary to effectuate the Agreements including making minor non-substantive changes.

## **BACKGROUND:**

Since their commissioning in June 2006, the Riverside Energy Resource Center Units 1 and 2 (RERC 1 & 2) have reliably produced 96 megawatts of electricity a year, helping the electric utility meet Riverside's energy needs. Each unit operates in compliance with the United States Environmental Protection Agency (EPA) and South Coast Air Quality Management District (SCAQMD) regulations. Two (2) of the most stringent operating permit limitations are the emission concentration levels of Carbon Monoxide (CO) and Nitrogen Oxide (NOx). Hourly CO concentration emissions levels must average less than 6 parts per million (ppm), and NOx emissions hourly averages must be below 2.5 ppm.

Reducing the plant's CO and NOx air emissions to these microscopic levels are achieved in two (2) separate stages. The first stage consists of 80 CO catalyst modules that have platinum and other precious metals in their composition. The modules are integral to each gas turbine and react with the raw emissions to reduce CO emissions levels from 80 ppm to less than 6 ppm. This stage reduces more than 90% of CO emissions from each gas turbine. The second stage consists of eight (8) Selective Catalytic Reduction (SCR) modules located downstream to the CO catalyst modules. The SCR modules react with plant emissions and reduce NOx emission levels from 25 ppm to 2.5 ppm. This stage reduces more than 90% of NOx emission.

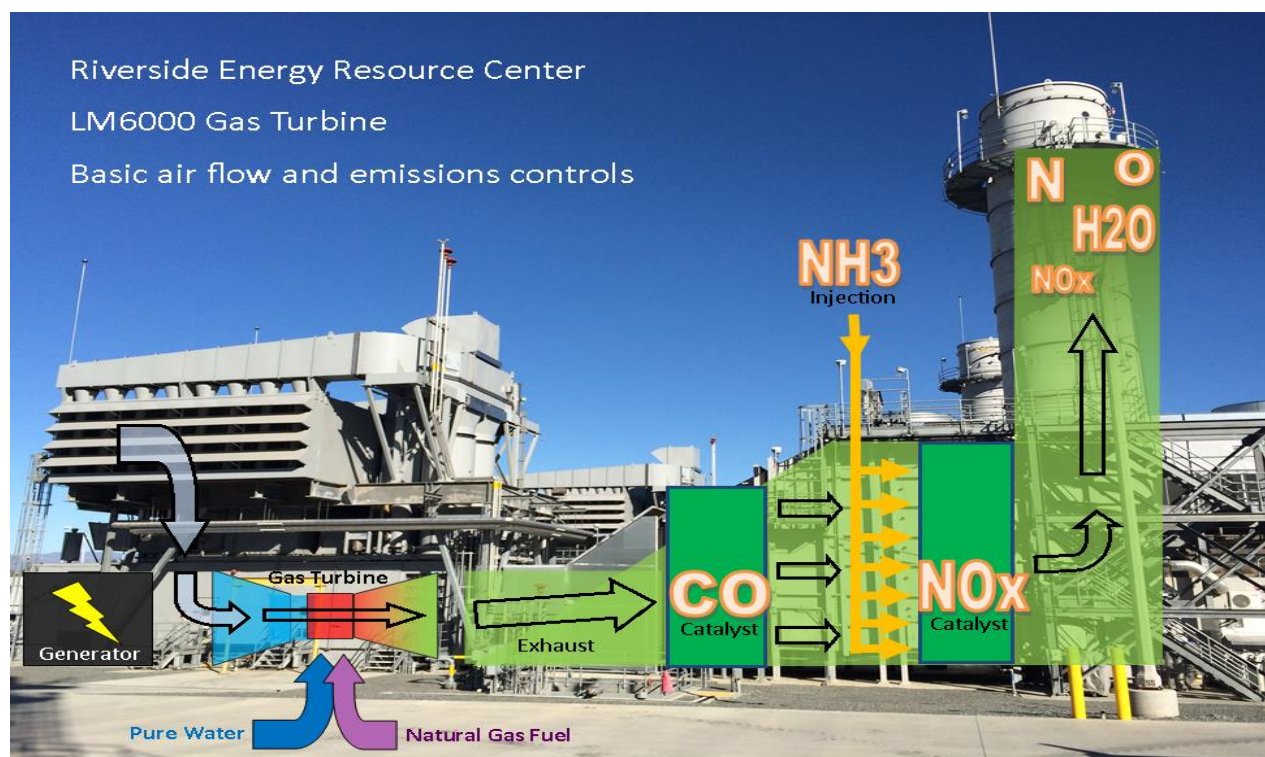
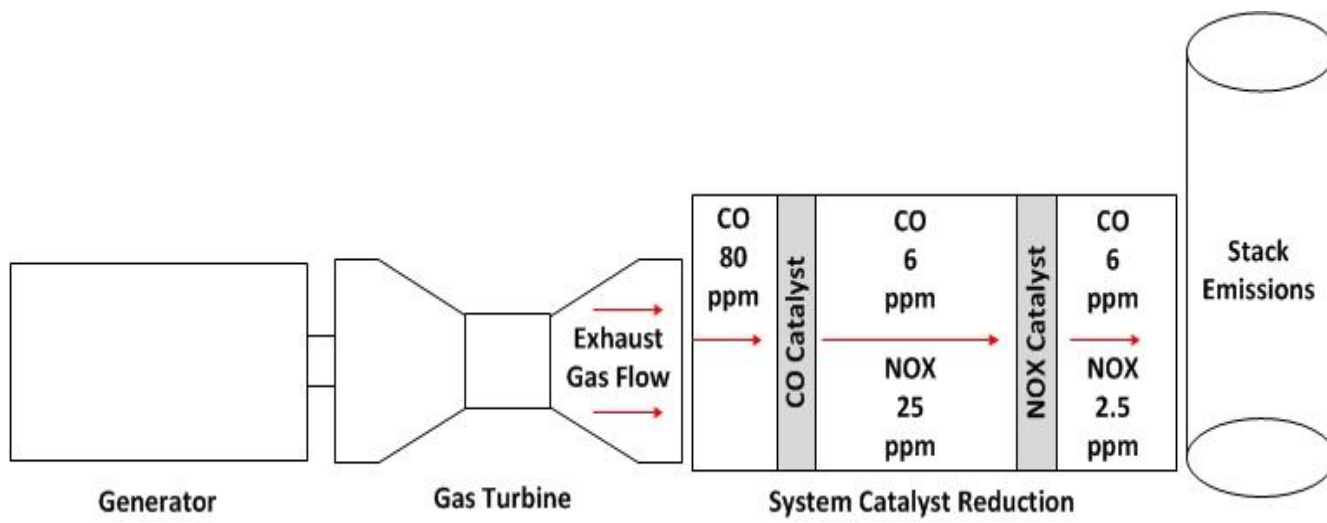
During recent operations, staff detected a change in emissions from the RERC 1 & 2 CO catalyst modules. Staff conducted a thorough inspection and extracted core samples from each module for laboratory analysis. Test results indicate the modules have reached the end of their useful life. CO catalyst modules are normally replaced after seven (7) years; through exceptional operating and maintenance practices, the life of the modules in RERC 1 & 2 was extended to 13 years. Therefore, staff recommends replacing the CO catalysts modules on RERC 1 & 2.

During the same inspection, staff examined and analyzed core samples from the SCR modules. Laboratory test results indicate the catalyst in the SCR modules is still maintaining high reactivity levels and performing better than the design expectations, but the inspection identified deficiencies with their physical integrity. Each module is constructed with multiple honeycomb-like elements, and through normal use, the elements have shifted and caused NOx leakage. Therefore, staff also recommends completing the SCR maintenance and restacking the NOx catalyst modules on RERC 1 & 2.

RERC 1 & 2 utilize the best available CO and SCR designs, and each unit is regulated to the lowest possible emission levels in the industry. Maintaining RERC 1 & 2's reliability and regulatory compliance is contingent on the completion of the CO catalyst replacement and SCR maintenance during an outage planned on May 5, 2019. Continued operation in the current condition is not recommended or sustainable.

The urgency and magnitude of these required repairs align with the intention of the approved budget in the Public Utilities Contingency Generating Plants Account. Performance of the catalyst modules degrades rapidly at the end of their useful life, and delaying to the next budget approval cycle is not feasible.

The following illustrations outline the flow of emissions on a gas turbine engine at RERC.



## **DISCUSSION:**

Requests for Proposal (RFP) Nos. 1882 and 1883 for Selective Catalytic Reduction Maintenance on Riverside Energy Resource Center Units 1 and 2 and for Carbon Monoxide Catalyst Replacements on Riverside Energy Resource Center Units 1 and 2, respectively, were posted on November 30 and closed on December 18, 2018.

Staff received two (2) proposals for RFP 1882 for Selective Catalyst Reduction Maintenance on RERC 1 & 2. After an extensive evaluation, Cormetech, Inc. was selected as the most responsive proposer based on qualifications, pricing and industry experience.

<b>Proposals:</b>	<b>Location</b>	<b>Amount</b>	<b>Rank</b>
1. Cormetech, Inc.	Durham, NC	\$202,865	1
2. SISU Energy and Environmental	Tulsa, OK	\$489,008	2

Staff received four (4) proposals for RFP 1883 for CO Catalyst Replacement on RERC 1 & 2. Two (2) of the proposals were deemed non-responsive. Staff invited the two (2) responsive proposers for an interview. After an extensive evaluation, Cormetech, Inc. was selected as the most responsive proposer based on qualifications, price and industry experience.

<b>Proposals:</b>	<b>Location</b>	<b>Amount</b>	<b>Rank</b>
1. Cormetech, Inc.	Durham, NC	\$561,195	1
2. ARB, Inc.	Lake Forest, CA	\$799,300	2 (original bid-\$425,508)
3. TMP Refining	Malvern, PA	\$533,840	Non-Responsive Excludes taxes, delivery time
4. SISU Energy and Environmental	Tulsa, OK	\$508,410	Non-Responsive Warranty concerns

The project/fiscal breakdown is as follows:

<b>Project and Fiscal Breakdown</b>		
Work Type	Performed By:	Amount (\$)
RFP 1882 SCR Maintenance	Cormetech, Inc.	\$202,865
RFP 1883 CO Catalyst Replacement	Cormetech, Inc.	\$561,195
Contingency CO Catalyst Replacement Project Work Order 1917240	RPU	\$56,120
RPU Staff Labor	RPU	\$15,685
<b>Total Work Order Amount SCR and CO Catalyst</b>		<b>\$835,865</b>
<b>Anticipated Start Date:</b>	<b>May 5, 2019</b>	
<b>Anticipated Duration:</b>	<b>30 days</b>	
<b>Coordination Required:</b>	<b>SCAQMD and other vendors</b>	

The Purchasing Manager concurs that the recommended actions are in compliance with Purchasing Resolution No. 23256.

### **FISCAL IMPACT:**

The total fiscal impact is estimated at \$835,865. Sufficient funds are available in the Public Utilities Contingency Generating Plants Account No. 6120100-428500.

Prepared by: Daniel E. Garcia, Utilities Assistant General Manager/Resources  
 Approved by: Todd M. Corbin, Utilities General Manager  
 Approved by: Al Zelinka, FAICP, City Manager  
 Approved as to form: Gary G. Geuss, City Attorney

Certifies availability

of funds: Aileen Ma, Interim Utilities Assistant General Manager/Finance & Administration

Attachments:

1. Agreement for CO Catalyst Replacement & Turnkey Installation Service, RERC Units 1 and 2
2. Agreement for SCE Maintenance & Turnkey Installation Services, RERC Units 1 and 2
3. RFP Award Recommendation for RFP 1882 for Selective Catalytic Reduction Maintenance at Riverside Energy Resource Center Units 1 and 2
4. RFP Award Recommendation for RFP 1883 for Carbon Monoxide Catalyst Replacement at Riverside Energy Resource Center Units 1 and 2
5. Presentation