



## Agenda Report

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**File #:** 2019-571, **Version:** 1

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**FROM:** James D. Herberg, General Manager  
Originator: Rob Thompson, Assistant General Manager

**SUBJECT:**

MP-275/MP-276 CENTRAL GENERATION ENGINE OVERHAULS AT PLANT NOS. 1 AND 2

### GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION: Recommend to the Board of Directors to:

- A. Award a service contract to UPS Midstream Services, Inc. to provide Central Generation Engine Overhauls at Plant Nos. 1 and 2 (for a total of two engines), Specification No. S-2019-1074BD, for a total amount not to exceed \$5,636,335; and
- B. Approve a contingency of \$1,127,268 (20%).

### BACKGROUND

The Orange County Sanitation District (Sanitation District) operates eight Central Generation (Cen Gen) engines manufactured by Cooper Bessemer, now part of General Electric (GE). These engines are no longer in production, but parts are available from GE and other third-party vendors. The engines generate approximately two-thirds of the Sanitation District's electric demand. Additionally, waste heat from the engines is recovered and supplies the majority of the process heat demand used in the solids digestion process and the absorption chiller at Plant No. 1 (which provides cooling for the Administration Building, Laboratory Building, Central Generation Building, and Operations Building). At Plant No. 2, the waste heat generated by the engines is also converted into electrical energy using a steam turbine.

The Cen Gen engines are recommended to have a major bottom-end overhaul at 140,000 run hours, approximately every 20 to 25 years. The engine types installed at the Sanitation District in the mid-1990s are not common. There are few companies in California that supply these heavy rebuild services. There have been three unsuccessful bid attempts by the Sanitation District to accomplish the bottom-end overhauls. Over the past three years, bids were received, but were deemed non-responsive for various commercial reasons and ranged from \$2.6 million to \$4.8 million, per engine.

### RELEVANT STANDARDS

- Protect Orange County Sanitation District assets
- Maintain a proactive asset management program

- Use all practical and effective means for resource recovery
- 24/7/365 treatment plant reliability

## **PROBLEM**

The Cen Gen engines require a major bottom-end overhaul at approximately 140,000 run-hours, and a lesser top-end overhaul approximately every 40,000 run-hours. Two engines are overdue for major bottom-end overhauls.

## **PROPOSED SOLUTION**

Staff recommends awarding a Contract to UPS Midstream Services, Inc. to provide parts and services to overhaul two Cen Gen engines located at Plant Nos. 1 and 2.

## **TIMING CONCERNS**

The existing Cooper Bessemer Gas Engine No. 1 at Plant No. 1 and Engine No. 5 at Plant No. 2 are past their recommended bottom-end overhaul service intervals.

## **RAMIFICATIONS OF NOT TAKING ACTION**

Failure to take action on this repair will inhibit the ability to reliably generate electricity and produce process heat, resulting in a potential additional annual cost of approximately \$1,400,000 per engine per year at Plant No. 1, and \$1,680,000 per engine per year at Plant No. 2 to offset energy purchases and incurred demand charges.

In addition, the engines are critical for process treatment requirements and use of digester gas produced in the digestion process. If the engines are not available, it will result in significant flaring of digester gas.

## **PRIOR COMMITTEE/BOARD ACTIONS**

April 2019 - Board of Directors authorized the General Manager to commence negotiations with identified firms for the overhaul of two Central Generation engines located at Plant Nos. 1 and 2.

## **ADDITIONAL INFORMATION**

A Request for Proposal (RFP) was issued on June 19, 2019 via PlanetBids and closed on July 25, 2019 for the overhaul of two Cen Gen engines. The Sanitation District received four responsive proposals which were first evaluated on a pass/fail basis, then individually scored and weighted by the evaluators. The members of the evaluation committee consisted of staff from the Engineering, and Operations & Maintenance Departments.

Three of the four proposals passed the first round of evaluation by having the required company experience with similar engine overhauls. The three proposals that passed the first round were then evaluated based on the following criteria: (1) proposed staffing and project organization; (2) work

plan; and (3) cost. The two top scoring proposals each submitted a Best and Final Offer for cost and the highest scoring firm was then identified. The Sanitation District was then able to successfully negotiate mutually agreed upon contractual terms and conditions.

Based on these results, staff recommends awarding the Service Contract to UPS Midstream Services, Inc.

**TABLE 1  
Proposal Evaluation\***

<b>Evaluator</b>	<b>Universal Plant Services dba. UPS Midstream Services, Inc.</b>	<b>GE Oil &amp; Gas dba Cooper Machinery Services</b>	<b>Reciprocating Technology Services</b>
1	880	798	116
2	860	833	331
3	895	833	296
4	860	833	71
5	890	833	121
<b>TOTAL AVERAGE WEIGHTED SCORE (Points)</b>	<b>877</b>	<b>826</b>	<b>187</b>
<b>TOTAL FINAL NEGOTIATED COST</b>	<b>\$5,636,334.63</b>	<b>\$6,191,817.37</b>	<b>Not Opened</b>

Staff evaluated replacement of major engine parts as a part of this procurement based on historical wear patterns. It is anticipated that some parts that are not specified for replacement will need replacement after inspection. These parts may include an engine crank shaft and/or the master rod bearings. Rather than unnecessarily replacing costly parts, a project contingency of 20% is requested to cover unexpected wear.

The Sanitation District’s asset management plan calls for the continued use of the Cen Gen Systems for another 25 years. The bottom-end overhauls serve as a midlife refurbishment for the engines to meet a 50-year life cycle. Staff has investigated other higher efficiency technology like fuel cells. These new technologies are not commercially viable. Refurbishing the engines and leveraging current investment is the recommended action.

**CEQA**

N/A

**FINANCIAL CONSIDERATIONS**

This request complies with the authority levels of the Sanitation District’s Purchasing Ordinance. This item has been budgeted in the FY19-20 budget Update, Operating and Maintenance Department Repairs & Maintenance line item (Pg. 47).

<u>Date of Approval</u>	<u>Contract Amount</u>	<u>Contingency</u>
10/23/2019	\$5,636,335	\$1,127,268 (20%)

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**ATTACHMENT**

*The following attachment(s) may be viewed on-line at the OCSD website ([www.ocsd.com](http://www.ocsd.com)) with the complete agenda package:*

- Service Contract