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SUBJECT:

ENERGY AND DIGESTER GAS MASTER PLAN, PROJECT NO. PS21-04

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION:

- A. Approve a Professional Services Agreement with Brown and Caldwell to provide engineering services for the Energy and Digester Gas Master Plan, Project No. PS21-04, for an amount not to exceed \$1,438,037; and
- B. Approve a contingency of \$143,804 (10%).

BACKGROUND

In the early 1990s, Orange County Sanitation District (OC San), constructed eight internal combustion engines at the Central Generation facilities at Plant Nos. 1 and 2 to generate electricity using digester gas with the waste heat used for digester heating, building cooling, and power generation. During normal operating conditions, the Central Generation facilities supply approximately 60% of the electricity at Plant No. 1 and 95% of the electricity at Plant No. 2.

OC San staff performs routine and regular maintenance based on hours of run-time per the manufacturer's recommendations. Recently, Engine No. 1 underwent its first bottom-end overhaul at 120,000 hours of run-time. The first two overhaul attempts on this engine using a contractor selected by a request for proposal process were unsuccessful. Using the original equipment manufacturer, the third overhaul was successful. OC San is planning to complete the overhaul of four more engines across both Plants to provide reliable operations for another 15-20 years.

During a utility power outage, OC San utilizes standby generators to provide primary treatment and keep water flowing through the treatment plants. The Central Generation facilities provide standby power for the remaining select treatment processes. Recently, the Regional Water Quality Control Board requested that OC San provide a standby power source to the Plant No. 2 Trickling Filter Solids Contact Facility, to prevent the bypassing of primary effluent flow during a power outage.

OC San's 2021 Strategic Plan includes an Energy Independence Policy. With this policy in place, OC San strives to be a net energy exporter by maximizing electrical, thermal and methane gas generation while minimizing energy utilization.

RELEVANT STANDARDS

- Comply with environmental permit requirements
- 24/7/365 treatment plant reliability
- Protect OC San assets
- Sustain 1, 5, 20-year planning horizons

PROBLEM

Although the Central Generation facilities can be maintained for another 15 to 20 years, there are concerns that critical parts needed to maintain these engines may not be available over time. South Coast Air Quality Management District's (SCAQMD) air quality discharge requirements continue to become more stringent and there may be a time when the Central Generation facilities will no longer meet these evolving standards.

OC San's National Pollutant Discharge Elimination System (NPDES) permit requires permit compliance during a power outage. OC San does not have a standby power policy that addresses the latest probable outage durations based on recent utility grid risks and which secondary and solids treatment processes need to have standby power and for what power outage duration.

PROPOSED SOLUTION

Develop an Energy and Digester Gas Master Plan that will provide a road map with options for OC San's beneficial use of digester gas. This study will look at long-term options if the engines can no longer be maintained due to lack of parts, or if SCAQMD regulations become more stringent. This study will also establish a standby power policy, update OC San's power outage response plan and procedures, and evaluate alternative power generation and energy storage methods.

TIMING CONCERNS

Conducting this study now will provide a road map that includes options with implementation triggers to guide timely future Capital Improvement Program (CIP) projects that will address the beneficial use of digester gas and standby power needs.

RAMIFICATIONS OF NOT TAKING ACTION

If the Central Generation engines can no longer be maintained due to unavailability of parts, or if the engines can no longer meet SCAQMD requirements, OC San would need to find another means to beneficially use digester gas, construct additional backup power facilities, and purchase additional electricity. OC San could also face potential permit violations due to not meeting treatment requirements during a power outage due to the lack of a defined standby power policy.

PRIOR COMMITTEE/BOARD ACTIONS

N/A

ADDITIONAL INFORMATIONConsultant Selection:

OC San requested and advertised for proposals for the Energy and Digester Gas Master Plan, Project No. PS21-04 on December 10, 2021. The following evaluation criteria were described in the Request for Proposals (RFP) and used to determine the most qualified Consultant.

CRITERION	WEIGHT
Project Understanding and Approach	40%
Related Project Experience	25%
Project Team and Staff Qualifications	35%

Three proposals were received on February 8, 2022 and evaluated in accordance with the evaluation process set forth in OC San's Purchasing Ordinance by a pre-selected Evaluation Team consisting of OC San staff: Engineering Manager, Engineering Supervisor, and Maintenance Manager. The Evaluation Team also included one non-voting representative from the Contracts Administration Division and one non-voting technical advisor. The Evaluation Team scored the proposal on the established criteria as summarized in the table below:

	Firm	Approach (Max 40)	Related Experience (Max 25)	Team (Max 35)	Total Score (Max 100)
1	Brown and Caldwell	37	18	23	78
2	Arcadis US, Inc.	25	20	28	73
3	Carollo Engineers, Inc.	24	20	28	72

Based on this scoring, all Consultants were shortlisted for interviews on March 17, 2022. Following the interview, each member of the Evaluation Team scored the Consultants based on both the proposals and interviews using the evaluation criteria and weighting described above. Based on the scoring shown below, Brown and Caldwell was selected as the most qualified Consultant.

	Firm	Approach (Max 40)	Related Experience (Max 25)	Team (Max 35)	Total Score (Max 100)
1	Brown and Caldwell	35	19	26	80
2	Arcadis US, Inc.	31	19	28	78
3	Carollo Engineers, Inc.	23	19	27	69

The selected team demonstrated clear understanding of the goals of the study and presented a clear approach to performing the work, including the development of a process-based standby power policy. In addition, they showed a wide range of experience using digester gas in beneficial ways along with key regulations that need to be addressed. They are also offering a team with experience preparing master plans that focus on energy, digester gas, and standby power requirements based on process needs.

Review of Fee Proposal and Negotiations:

Proposals were accompanied by sealed fee proposals. In accordance with OC San's Purchasing Ordinance, the fee proposal of only the highest-ranked firm was opened after approval by the Director of Engineering of the Evaluation Committee's recommendation.

Staff conducted negotiations with Brown and Caldwell to clarify the requirements of the Scope of Work, the assumptions used for the estimated level of effort, and the proposed approach to meet the goals and objectives for the project. These discussions occurred over three negotiation meetings with the main outcome listed below:

- The level of effort was reduced based on clarifications to the scope of work and reduced efforts that are required to update standard operating procedures for power outages and emergency responses. Reduced efforts were also applied to evaluation for future Central Generation facility replacement alternatives.
- The effort for senior level support was reduced for some tasks and transferred to support staff based on clarifications to the scope of work.
- Brown and Caldwell had included hours for a vendor solicitation task, which was not part of the Scope of Work. These hours were removed after clarification.

	Original Fee Proposal	Negotiated Fee
Total Hours	6,149	5,794
Total Fee	\$1,544,691.50	\$1,438,036.90

The Consultant's fringe and overhead costs, which factor into the billing rate, have been substantiated. The agreement profit is 7.79%, which is based on an established formula based on OC San's standard design agreements.

Based on the above, staff has determined that the final negotiated fee is fair and reasonable for the level of effort required for this project and recommends award of the Professional Design Services Agreement to Brown and Caldwell.

CEQA

The project is exempt from CEQA under the statutory exemptions set forth in CEQA Guidelines Section 15262. A Notice of Exemption will be filed with the OC Clerk-Recorder after OC San's Board of Directors approval of the Professional Services Agreement.

FINANCIAL CONSIDERATIONS

This request complies with authority levels of OC San's Purchasing Ordinance. This item has been budgeted (Budget Update, Fiscal Year 2021-2022, Appendix A, Page 9, Master Planning Studies, M-STUDIES) and the budget is sufficient for the recommended action.

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Professional Services Agreement
- Presentation