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Staff Report for the City of San Leandro City Council to Hold a Public Hearing Pursuant to California Government Code Sections 4217.10 and 4217.18 to Adopt Certain Findings and a Resolution to Approve an Installation Agreement with Climatec, LLC for Design and Construction of Energy-Efficiency and Resiliency Projects at the Water Pollution Control Plant for a Total Cost of \$8,045,781; and to Accept Grant Funds in the Amount of \$420,857 from Pacific Gas & Electric’s Self-Generation Incentive Program Grant and Approve the Appropriation of Grant Funds to Account 593-52-113

SUMMARY AND RECOMMENDATIONS

Staff recommends that, in accordance with California Government Code Sections 4217.10 and 4217.18, the City Council adopt certain findings and authorize the City Manager to enter into an Installation Agreement with Climatec, LLC to implement energy-efficiency and resiliency projects and related infrastructure improvements at the Water Pollution Control Plant (WPCP). The total cost for the Energy Service Contract is \$8,045,781, with a majority of the funding subject to either a municipal lease or a Bay Area Air Quality Management District (BAAQMD)/IBank loan (consideration of funding options to be brought separately to the City Council). The City applied and received a Self-Generation Incentive Program (SGIP) grant from Pacific Gas & Electric in the amount of \$420,857, which will be utilized towards the cost of this project. The projected net cost savings resulting from the improvements are estimated at \$6,276,396 over 15 years.

BACKGROUND

In December 2009 the City adopted a Climate Action Plan (CAP), with a vision to guide San Leandro toward a sustainable future that reduces greenhouse gas emissions, while promoting economic

prosperity for present and future generations. That document is currently being updated, with public input beginning this month and a public workshop scheduled for October 6, 2020.

For the CAP's database year of 2005, the City's measurable municipal operations, which are made up of municipal buildings, fleet, streetlights, water/sewage operations, and municipal waste, constituted less than one percent of San Leandro's total emissions. The 2009 CAP noted that while this percentage is on the low end of the typical range, and that actions to reduce municipal energy use may have a limited impact on San Leandro's overall community emissions levels, municipal actions can help reduce operation costs and have symbolic value by demonstrating leadership that extends beyond the magnitude of emissions actually reduced.

In January of 2015 the City issued a Request for Proposal for a citywide audit to determine potential municipal energy and water-efficiency projects. City goals for this work included: to leverage and maximize funding; alleviate unfunded energy-efficiency needs; upgrade existing systems; improve comfort and safety; reduce deferred maintenance; self-fund improvements, guarantee savings; and support the CAP. That work was awarded to Climatec in October 2015. Potential energy/water conservation measures identified through the audit included the following categories: building automation systems (BAS); HVAC systems; renewable energy; energy education and training, lighting systems; water management; building envelope; and other systems such as CCTV system, intrusion security, and computer power management.

Climatec was founded in 1975 (and acquired by Robert Bosch in North America in 2015) and is California's largest energy management provider, with local offices located in Pleasanton. Climatec's company-wide work includes the following: building automation, enterprise energy management, energy services, security solutions, life safety, support services, and mechanical systems.

Specific to their work to date with the City, the following projects/programs have been either proposed or completed:

- Performed a city-wide energy and water-efficiency audit with recommendations on potential projects;
- Completed Phase 1a program which included LED streetlight retrofits, HVAC upgrades, installation of irrigation clocks, BAS upgrades, LED building interior lighting upgrades, lighting controls integration with BAS, and LED building exterior lighting upgrades;
- Completed Phase 1b program (1 Megawatt solar photovoltaic (PV) installation at the WPCP; and
- Proposed Phase 2 program, which would have added microgrid components to the first-generation LED streetlights, and complete remaining interior/exterior LED lighting and HVAC upgrades. This Phase was not initiated due lack of identified funding sources.

The WPCP is the highest energy-consumer of all municipal operations, with historic electrical bills in excess of \$500,000 annually. In May 2020, the WPCP received a Permit to Operate a new 1 MW (megawatt) solar photovoltaic (PV) system, designed and installed by Climatec. The solar PV system was projected to produce approximately 45+ percent of the WPCP's energy needs. Although a full year's worth of use data has not occurred, preliminary analysis provided by a third-party consultant indicates that the solar PV system is producing energy savings in excess of projections.

In 2008 the City contracted with an internationally recognized engineering firm for design and construction of a co-generation and grease receiving station. This project, which at the time was

projected to cost approximately \$4 million, was intended to utilize the WPCP's methane gas (which is currently 100% burned (flared) off) and additional grease brought in from outside vendors, to produce a portion of the Plant's electrical power needs. Although constructed, the equipment never operated correctly (did not produce any power). Ultimately, the project was deemed unsuccessful and the City and engineering firm settled for return of the City's initial \$4 million investment.

Analysis

The proposed project's components were identified in Climatec's initial citywide energy/water efficiency audit performed for the City in 2015. However, due to the major WPCP renovation project going on at the time, staff felt the timing was not right for implementation.

The goals of this latest phase of proposed efficiency work are to improve the overall operations of the WPCP by bypassing industrial waste directly to the digesters, increasing the capacity of the system for future growth, reducing Green House Gas (GHG) emissions (flaring reduction), providing additional revenue streams, and implementing resilient technologies to maintain operation during power outages and Public Safety Power Shutoff (PSPS) events. The proposed project includes the following components:

- **Battery Energy Storage System (BESS) with Micro-Grid Controller** - The BESS would be integrated with the existing solar photovoltaic system and be utilized for peak demand shaving, energy arbitrage, grid greenhouse gas (GHG) offsets, and serve as the primary backup power (2-hour near full Plant back-up) during Public Safety Power Shutoff (PSPS) events and other power grid interruptions.

The WPCP is a 24/7 facility that treats and discharges municipal wastewater. Due to power shutoffs and the critical nature of the facility to constituent health and safety, battery storage has been identified as a valuable tool for use by the City. The battery is intended to operate in both load shift and backup modes. When a PSPS event (or like) is anticipated, energy will be stored to operate in emergency backup mode. Once such a risk has passed, normal daily operation will be resumed. During normal operations the BESS controls will charge during low-GHG periods and discharge during high-GHG periods, offsetting at least 5 kg of CO₂ per kWh capacity. The system will discharge a minimum of 104 cycles per year, and charge minimally 75% from the solar PV system. The system will have the ability to run a majority of the WPCP's electrical load on islanded battery power, including all pumps, treatment processes, and office/lab facilities.

The micro-grid controller system will monitor power consumption of the facility loads, power generation from the PV system, grid GHG emissions signals, BESS power and energy charging/discharging data will be collected. In addition,, grid power will be monitored to determine when islanding will be necessary. The net-generation output meter on the PV system will also transmit production data to the utility. The onsite metering locations feed this relevant data to the control system to optimize charging/discharging schedules and ensure the BESS is primarily charged from the PV system.

- **Biogas to Renewable Natural Gas (RNG) System** - Produce RNG from the WPCP's current methane supply (up to 100 cubic feet per minute).

The treatment plant is currently burning the majority of the digester gas being produced by the

digesters (remaining flow is used for digester heating). A new system will allow the plant to capture digester gas flow and convert it into a renewable energy source that can be constructively utilized. Infrastructure will be added to the plant to make this possible. There is a projected annual revenue of \$584,476 from the sale of said fuel.

- **High Strength Waste (HSW) Receiving Facility** - Utilize up to 5,800 gallons per day of food processing waste.

The food processors located within the City will start/continue separating their solids from the wastewater stream and diverting them to the WPCP's digesters via trucking (instead of the whole waste-stream going to drain). Infrastructure will be added to the WPCP to make this possible. Removal of this material from the waste-stream will reduce operational costs by decreasing the 'load' on existing facilities and increases the life of existing equipment.

- **Energy Conservation Upgrades**

- *Digester Mixer Replacement* - Digester #4 is currently employing inefficient pump mixing. Infrastructure will be added to convert the mixing to an in-tank propeller system, while at the same time replacing the existing mixing pump with a new pump currently stored on site at the treatment plant for backup purposes.
- *Heat Loop Pump Replacement* - Two heat loop pumps in the Digester #1-3 area are at the end of their useful life and in need of replacement. Infrastructure will be added to modernize and replace the pumps.
- *Turbo Blower Replacement* - There are currently three blowers serving the aeration basins (two primarily operate with one standby). Infrastructure will be added to replace one of the remaining blowers with turbo technology. This has already proven itself to have a significant energy savings from a previous project.

More details and technical specifications can be found in Attachment A of the Installation Agreement, attached to this report.

In the interest of confirming project viability, the City contracted with DERNetSoft, a local energy conservation and clean technologies consultant, to perform a peer review. In an effort to remove any possibility of direct influence, Climatec was given no information about or contact with the consultant. DERNetSoft was given a project overview and additional data that could not be found via utility records. The City redacted certain assumptions about cost recovery from the Climatec proposal in order to allow DERNetSoft to run parallel calculations. The outcome of the review was positive, indicating that the battery system was likely to save slightly more money than projected by Climatec, and that calculations regarding CNG production were reasonable. Energy-saving equipment replacements were not incorporated into the peer review as they are direct calculations that require no assumptions in order to derive installation return on investment.

Based on the peer review and vetted design specifications, this project is expected to provide revenue with the sale of CNG and reduce on-going utility bill and equipment replacement costs. Because of the market conditions related to both utility rates and CNG, it isn't possible to provide exact savings amounts at this time. However, based on project assumptions, the anticipated net

effect will be to reduce the projected rate of increase of customer rates over time.

Applicable City Policies

- General Plan Policy OSC-7.6 **Reducing Municipal Greenhouse Gas Emissions**. Reduce greenhouse gas emissions associated with municipal operations, including those associated with energy use, City vehicles, City recycling and composting operations, and utilities.
- Climate Action Plan (CAP) Goal #6.1, “Increase Energy Efficiency and Renewable Energy Use in City Facilities”

Implementation of the proposed efficiency projects will make significant progress on the City’s adopted Climate Action Plan. The CAP states that, “Greenhouse gas emissions related to buildings, streetlights and water/sewage facilities comprise 34 percent of San Leandro’s total government operations emissions inventory”. On an annual basis, energy savings from these projects would equate to 58 passenger cars removed from the roadway; 31,500 gallons of gasoline saved; 8,306 trees preserved from deforestation; and 42 San Leandro homes powered. Please see Attachment C for additional environmental benefits.

The current CAP is undergoing a comprehensive update and draft policies are not available for public review at this time. However, this proposed project will dovetail nicely with the expanded discussion of resiliency (in addition to energy efficiencies) that is part of the draft CAP. For instance, under an extended PSPS event, it is conceivable that the WPCP could be without power. In a recent real-life example, EBMUD’s wastewater plant was without power and over 50,000 gallons of raw sewage entered the Oakland Estuary.

Previous Actions

- City Council Meeting May 4, 2020 - Application to Apply for an SGIP Grant and to Appropriate \$120,000 from the WPCP’s Fund Balance Reserves
- City Council Meeting May 4, 2020 - Resolution No. 2020-043

Environmental Review

Required environmental review will take place during the project design phase. A determination of ‘Exempt’ is anticipated, since all development is taking place within previously disturbed/excavated portions of the WPCP.

Legal Analysis

California Government Code Section 4217 design-build energy legislation has been used hundreds of times over the past 30 years to procure projects similar to the one proposed for the WPCP. This includes the previous phases of work Climatec has performed for the City. The proposed project is well-suited for this type of procurement due to its comprehensive nature and the complexity of the proposed measures. If the City elected to design, engineer, and construct a similar program through the traditional specified bid approach, it would not only take much longer to implement the efficiencies, but also expose the City to change orders, scope gaps between separate contractors, and require significant upfront capital for the necessary design and engineering work.

As with the previous Climatec-led projects, competitive bidding will be done for the major components of the project. This project will also be subject to the City's Community Workforce Agreement (CWA), with full transparency on the competitive bids and resulting subcontractor selection.

The City Attorney reviewed the draft agreement and finds that the agreement with Climatec meets the City's requirements, such that this agreement is approved as to form.

Fiscal Impacts

The total estimated cost for infrastructure improvements, including taxes and bonds, equals \$8,045,781. The estimated savings/revenue in the first year is \$842,517. Fifteen-year lifecycle savings/revenue are projected at \$14,322,177 with an estimated net positive fiscal impact of \$6,276,396 over the same period.

The City has several options to fund these improvements, including issuing debt. Because of other WPCP Enterprise Fund debt obligations, including the Infrastructure State Revolving Fund loan utilized to pay for the \$50+ million upgrade project, other planned infrastructure work, and operating expenses that include contingency funds in case of a major Plant failure, it was determined that existing WPCP fund balance would not be used to pay for this project.

With the SGIP grant in the amount of \$420,857, this leaves \$7,624,924 to be financed. The Finance Department is looking at the following options: adding onto our existing municipal lease that was obtained via issuance of an RFP and issued from Bank of America; issue a new RFP for a new municipal lease; or obtain a Bay Area Air Quality Management District (BAAQMD)/IBank loan. At present, municipal leases are presenting rates at approximately 2.25% (15-year term) to 2.45% (20-year term). IBank loans are ranging from approximately 2.6% (15-year term) to 2.65% (20-year term).

The SGIP grant requires City approval of the proposed project within 90 days of PG&E's 'conditional reservation' (completed July 14, 2020). In order to enter their Proof of Milestone phase, a fully executed Installation Agreement must be submitted to PG&E.

Staff notes that the proposed project funding source (that portion beyond the SGIP grant) will be brought to Council for consideration at a future meeting, and that implementation of Climatec documents is contingent upon the City Council's approval of said funding option.

ATTACHMENTS

- Attachment A - Installation Agreement
- Attachment B - Third-Party Review of Battery Storage Proposal
- Attachment C - Environmental Benefits

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