DATE: March 6, 2018

TO: Mayor and City Council

FROM: Director of Utilities & Environmental Services

SUBJECT: Solar Photovoltaic Project - Phase II: Approval of the Mitigated Negative Declaration; Authorization for the City Manager to Negotiate and Execute a Design-Build Contract to Construct a Two-Megawatt Solar Energy System and Submit an Application to the California Energy Commission for Financing; and Appropriation of Additional Funds

RECOMMENDATION

That Council adopts the attached resolutions:

1. Approving the Initial Study and Mitigated Negative Declaration prepared for the Solar Photovoltaic Project – Phase II; and

2. Authorizing the City Manager to negotiate and execute a design-build contract with Engie Services U.S. Inc., which submitted the low bid, in an amount not to exceed $5,740,000, for a two-megawatt solar photovoltaic energy system to be installed at Water Pollution Control Facility; and

3. Authorizing the City Manager to submit an application for a California Energy Commission (CEC) low-interest rate loan; and

4. Appropriating additional funds from the Sewer Improvement Fund for the Solar Photovoltaic Project – Phase II.

SUMMARY

The first phase of the City's solar photovoltaic (PV) project, located at the Water Pollution Control Facility (WPCF), was commissioned in 2011. The proposed project would expand the City's existing one-megawatt solar system by an additional two megawatts for a total of three megawatts. The new system would occupy about nine acres of land adjacent to the existing system. A portion of the proposed additional solar energy would be used to further offset the power demands of City facilities through Pacific Gas & Electric's (PG&E) Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) program to help the City get closer to meeting its goal of zero net energy for its municipal facilities, with the remaining energy exported to East Bay Community Energy.

The City plans to construct the new solar facility under a design-build contract and will own and operate the facility following project completion. Design-build refers to a method of project delivery under which one entity (i.e. the design-build team) works under a single contract and is responsible for both design and construction services. The new solar PV system would consist of approximately 6,500 solar panels. The project would substantially reduce greenhouse gas emissions, offsetting approximately 2,600 tons of carbon dioxide. Construction of the project is estimated to start in May 2018 and be operational by January 2019. The design-build contract will be at $5,740,000, which includes the low bid of $5,464,360 and a $275,640 administrative change order contingency for unforeseen changes and conditions during design and construction.

BACKGROUND

The City is a leader in sustainability being one of the first cities in California to adopt a Climate Action Plan (2009) demonstrating its commitment to environmental protection and sustainability. Among the City's Climate Action Plan objectives is a goal to reduce municipal greenhouse gas emissions by twenty percent below 2005 baseline levels by 2020. In 2016, the City adopted a resolution establishing that all new municipal buildings, as well as significant retrofits of existing buildings, be zero net energy (ZNE). The City is striving to achieve ZNE for its portfolio of facilities by 2025 through production of more renewable energy at the City's WPCF and other City facilities.

The existing one-megawatt solar system was commissioned in 2011 and supplies approximately twenty percent of the WPCF's energy demand. A few years after the solar photovoltaic project was put in service, the City upgraded its combined heat and power cogeneration facility at WPCF which uses bio-gas, a renewable by-product of the wastewater treatment process, to produce more renewable energy. Because some of the energy produced by the cogeneration system is at times excess to the needs of WPCF, the City is able to export excess energy generated by both the solar PV and the upgraded cogeneration system to the grid for use at other City facilities under the RES-BCT tariff. Under the RES-BCT regulations, the City is authorized to produce up to five megawatts of power and export its excess energy to a limited number of other City facilities. Due to the restrictions associated with the number of benefiting accounts, and the minimum benefit to each account, the tariff would allow for an addition of only 0.5 megawatt of solar energy. However, staff is proposing a larger expansion, in anticipation of new regulations from the recently formed East Bay Community Energy (EBCE), which would not only allow but encourage local clean energy producers to generate and transfer to EBCE as much clean energy as they can produce.

The proposed two-megawatt solar system project would increase the City's solar power generation from one to three megawatts and provide the following benefits:

- Contribute substantially to the City's goals to reduce greenhouse gas (GHG) emissions and reach the zero-net energy goal by 2025.

- Provide the ability to expand the existing RES-BCT program by adding a number of additional benefitting accounts, further reducing the reliance on non-renewable energy sources such as energy generated by burning natural gas.

- Provide the ability to contract with EBCE to sell clean energy through a power purchase agreement further contributing to the reduction in reliance on fossil fuels county-wide.

Planning for the proposed project has included researching financial incentives and performing an environmental review pursuant to the California Environmental Quality Act (CEQA) resulting in an Initial Study and Draft Mitigated Negative Declaration. The study has been available for public review for the required time period; and is now recommended for Council's approval. Staff has also identified a low-interest loan program administered by the California Energy Commission (CEC) for which the proposed solar project would be eligible. Application for the CEC loan will require a resolution approving and authorizing the application.

DISCUSSION

Environmental Review

City staff prepared an Initial Study and Mitigated Negative Declaration in compliance with CEQA (see Attachment VI). The study identified potentially significant impacts related to Air Quality, due to dust during construction; encountering Cultural Resources during construction; and Water Quality during and after construction. The Initial Study determined that impacts were reduced to less than significant based on following standard construction and water quality mitigation measures as identified in the Mitigation Monitoring and Reporting Plan. The Initial Study and Mitigated Negative Declaration was distributed for public review and comment on January 26, 2018, and a legal notice was published on the same day. No comments or inquiries were received during the review period for the Initial Study and Mitigated Negative Declaration. The notice of determination will be sent to the Alameda County Clerk for recordation upon approval by the City Council.

Design-build Selection Process

There are various ways that the design, procurement, and construction of public projects can be processed. The two main options are conventional design-bid-build, and as an alternative, the design-build approach. The advantages and disadvantages of each option were discussed with the Council Sustainability Committee on September 11, 2017. A copy of the Committee staff report can be found at: http://bit.ly/2sNDIZX. Based on direction from the Committee, staff proceeded with the design-build option.

On October 31, 2017, staff issued a request for proposals (RFP) seeking proposals from three qualified firms. The scope of work included design and construction of a two-megawatt solar PV energy system at the WPCF and operation and maintenance services for a twenty-year period. On November 17, 2017, staff received proposals from two firms, REC Solar and Engie Services U.S. Inc (Engie Services).

Staff evaluated both proposals using defined criteria such as experience with similar successful projects, knowledge and technical qualifications, cost, and schedule. During the review period, the federal administration announced that it would impose a thirty percent tariff on imported solar panels. Both REC Solar and Engine Services proposed using high efficiency imported solar panels with twenty percent higher power output. Staff considered requiring the use of other panels not subject to the new tariffs. However, staff's analysis showed that an additional 2.5 acres would be required to generate the same amount of energy using the lower efficiency panels. Therefore, the City requested that REC Solar and Engie Services revise their proposals to reflect the portion of the added tariff on imported solar panels which each firm chose to add on to the project cost. Revised proposals were received on February 7, 2018.

A summary of the two design-build proposals received is summarized on Table 1. Both firms met the minimum qualification and experience requirements outlined in the City's RFP. In addition, REC Solar and Engie Services are both proposing to install identical systems with the same equipment and indicated they could meet the City's required scheduled completion date of the end of 2018.

Based on an objective evaluation of both proposals, staff is recommending award of the design-build contract to Engie Services for the following reasons:

- *Total project cost*: As shown in Table 1, REC Solar and Engie Services submitted design-build cost bids of $5,539,104 and $5,464,360, respectively. Engie Services submitted the lower design-build bid by $74,000.

  As part of staff's review process, the two firms were asked to confirm that their bids included full compliance with the City's Community Workforce Agreement (CWA) requirements, and to estimate the effect of CWA requirements on proposed project cost. The CWA was approved by Council on April 14, 2015 and requires the use of union labor for construction projects that exceed one million dollars. REC Solar estimated a cost increase of $850,000 based on a quote from subcontractors for the use of union labor forces. Engie Services estimated the CWA had no significant change in their cost proposal since they have been utilizing union labor for their construction projects.

- *Operations & Maintenance (O&M) cost:* Engie Services' proposal has the lower operation and maintenance costs, when evaluated over a twenty-year period.

- *Warranty*: Engie Services' proposal includes an additional two years on the product warranty for solar modules and ten more years on the racking structure, as compared to REC Solar.

Engie Services has a local office in Oakland and has successfully completed similar solar projects for City of Yuba, City of Salinas, and City of Livermore. They have the experience and qualifications to perform the design and construction services required by the City for the proposed solar energy project.

Table 1. Summary of Solar Energy System Bid Proposals

	Item	REC Solar	Engie Services
System	RESBCT portion	777.6kW DC, 600AC	777.6kW DC, 600AC
	EBCE portion	1814.4kW DC, 1400AC	1814.4kW DC, 1400AC
	Total	2.6 MW DC, 2.0MW AC	2.6 MW DC, 2.0MW AC
	Module Type	LG 400N2W-A5	LG 400N2W-A5
	Module Qty	6480	6480
Cost	Total cost, including impact due to 30% tariff on imported solar panels	$5,539,104	$5,464,360
Operations and Maintenance (O&M)	Cost at Year 1	$42,407	$38,880
	Annual Escalator	2.5%	3.0%
	Net Present Value for 20 years O&M cost using 3% annual escalation rate	$786,546	$754,951
Warranty	Module	10yr product, 25yr power output warranty	12yr product, 25yr power output warranty
	Inverter	10yr product	10yr product
	Racking Structure	10yr structural, 5yr motor and controls	20yr structural, 10yr motor and controls
	Electrical equipment/wires	10yr workmanship warranty	10yr workmanship warranty
Schedule	Months to Completion	6 months	7 months

ECONOMIC IMPACT

Given that WPCF is already energy self-sufficient, the energy produced by the new facility would almost exclusively be used for export to either other City buildings or facilities to help the City meet its ZNE goal or sold to EBCE. While the financial variables are numerous and hard to precisely predict this early in the project, staff believes the project's impact on City residents and businesses to be neutral.

FISCAL IMPACT

The total estimated project costs are as follows:

Design and Administration Services – City Staff	$ 70,000
Design and Construction Contract (including administrative change orders)	$ 5,740,000
Estimated PG&E Interconnection Service Upgrade fee	$ 250,000
Inspection– City Staff and Third-Party Testing Companies	$ 100,000
Total	$ 6,160,000

The total project cost includes an amount of $5,740,000 to design and construct the new solar PV project, which includes Engie Services' low bid of $5,464,360 and an administrative change order budget of $275,640 in the event additional funds are needed for unforeseen changes and conditions during design and construction.

The current Ten-Year Capital Improvement (CIP) Program includes $5,205,000 for the Solar PV Project – Phase II. As shown above, the current project cost estimate exceeds the amount budgeted in the CIP due to an increase in the project size from the original planned one-megawatt facility to a proposed two-megawatt facility, and the recent, unanticipated thirty percent tariff added to imported solar modules. Staff is requesting that adequate funds be appropriated from the Sewer Capital Improvement Fund balance in an amount of $955,000. There will be no impact on the General Fund.

Staff plans to apply for a low-interest loan from the CEC to help finance the project. Based on the guidelines from the CEC, the maximum loan is up to $3,000,000 per applicant. However, at this point, only less than one million dollars is available for distribution. If successful, annual debt service would be in the range of up to $220,000 annually, which would be paid for from the Wastewater Operating Fund. The annual $38,880 O&M cost would also be budgeted in the Wastewater Operating Fund.

STRATEGIC INITIATIVES

This agenda item supports the Complete Communities Strategic Initiative. The purpose of the Complete Communities strategy is to create and support structure, services, and amenities to provide inclusive and equitable access with the goal of becoming a thriving and promising place to live, work and play for all. This agenda item supports the following goal and objective:

Goal 1: Improve quality of life for residents, business owners, and community members in all Hayward neighborhoods.

Objective 1: Increase neighborhood safety and cohesion.

By producing more emissions free energy from renewable sources, this project in a small measure contributes to the health and wellbeing of our residents throughout the City.

SUSTAINABILITY FEATURES

The installation of additional solar PV in municipal facilities would allow the City to work towards producing local, GHG-free electric energy, from renewable sources. This project will get the City a step closer to meeting the Council's stated ZNE goal for City municipal services by 2025. The City is currently producing more than fifty percent of its electric energy from renewable sources and purchases just over 8,000 megawatt hours from PG&E. This project can potentially produce an additional 4,700 megawatt hours and get the City substantially closer to meeting its municipal ZNE goal. In addition, the City would be able to initiate a new energy purchase agreement with EBCE to sell and support clean electricity with lower rates for local communities.

PUBLIC CONTACT

As discussed previously, the CEQA Initial Study and Draft Mitigated Negative Declaration has been circulated and posted for public review and comment. No comments have been received at this writing.

SCHEDULE

The estimated schedule for this project is summarized as follows:

Initiate design	March 2018
Initiate construction	May 2018
Complete construction	December 2018
Begin operation	January 2019

Prepared by: Terence Lai, Associate Civil Engineer
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Recommended by: Alex Ameri, Director of Utilities & Environmental Services

Approved by:

Kelly McAdoo, City Manager