Staff Report

TO: City Council

FROM: Thaxton Van Belle, Director of Water Reclamation
Kenyon Potter, Principal Engineer

DATE May 6, 2025

SUBJECT: Briefing on Future Wastewater Treatment Plant Solar Generation Project

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Description Discussion of solar energy generation for operational cost savings.

Background and Analysis:

The WWTP Salt Mitigation Upgrade project was completed on October 24, 2022. The Project upgraded and expanded the City's Wastewater Treatment Plant (WWTP) to meet new basin plan requirements for the total dissolved solids (TDS) reduction, as well as expanded to accommodate growth in the service area.

On May 29, 2024, the City received the final version of the WWTP Climate Action Plan, which recommended the following action:

> Install solar on the WWTP site to offset the facility's energy use.
> This action directs the City to implement the solar installation project currently being studied for the WWTP site. Solar arrays are a source of renewable energy that can be used to directly power the WWTP, reducing electricity consumption and costs from SCE. The system can also be designed to create climate adaptation co-benefits, including charging the on-site battery storage, which keeps the WWTP running during man-made or climate emergencies.

On March 18, 2025, the City Council approved re-bidding the WWTP Improvements (WW24-01) and directed staff to revise the plans. Staff is presently preparing the revised plans and specifications for a rebid of the WWTP Improvements Project, including two bid packages for civil work and landscaping, respectively. The WWTP Improvements bid packages reserve space for the future solar generation project.

General Plan Consistency

A solar generation project is consistent with the General Plan Goal 8.2.1 "Promote the incorporation of alternative energy generation, e.g., solar, in public and private

development" and Goal 8.3.5 "Prioritize municipal policies and programs that reduce the City's carbon footprint, such as…pursuing solar installations…."

Preliminary Design

Staff has prepared a preliminary layout of the ground-mount solar system located on the east side of the WWTP. The system would be sized to generate the approximate actual load (kW) of the WWTP. As envisioned, at full buildout, the system would be 860 kW and have approximately 1500 panels. The system would be interconnected behind the meter, and all power would be consumed by the WWTP to reduce the amount of power purchased from SCE. A conceptual site plan is provided showing the solar array (Attachment A).

Operational Cost Savings.

A substantial portion of the cost of operations is energy, and the energy cost is anticipated to increase each year. At full buildout, the estimated onsite generation, and thus potential reduction in energy purchased from SCE, is 1.4 MWh to 1.5 MWh per year (Attachment B). The WWTP's current SCE tariff rate is TOU-8-D, which has a tariff rate of $0.08 from 8 AM to 4 PM (Attachment C). Based on the current rate, the proposed project is estimated to result in energy cost savings of $105,000 to $120,000 per year, and cost savings are expected to grow as SCE is forecast to continue to raise rates.

Another significant component of the SCE bill is the demand charge, which is the maximum power used in a 30-day period. With input from consultant SKM, staff is also working to manage and optimize energy loads to minimize the impact of demand charges.

Many water and sanitation districts have implemented solar generation projects due to realizing cost savings.

Funding Options.

The proposed system has a relatively short payback period of approximately 7 to 10 years. The City is currently evaluating a potential refinancing of the 2018 Wastewater Revenue Bonds, which may include the option to issue additional debt to fund this project. This approach is considered the most favorable, as the associated debt service has already been incorporated into the current rate study. However, if market interest rates become less favorable, the City could consider procuring the system directly and financing it through the resulting energy cost savings. As an alternative, the project could be delivered through a design-build-operate-transfer (DBOT) model, in which a private entity constructs and operates the system for a minimum of five years before transferring ownership to the City. Additionally, a 30% federal incentive is currently available, which could significantly reduce the system's upfront costs. The project may also be implemented in phases to address funding constraints. (Attachment D).

Fiscal Impact:

The cost to prepare this staff report is estimated to be $500. As stated above, solar generation has the potential to achieve substantial annual cost savings. The estimated capital outlay is $1.5M for equipment purchase, installation, and interconnection at the WWTP. The estimated hard cost includes materials costs of $700K for panels, racks, inverters, and cabling. The estimated labor cost for the installation of a solar system is $300K. The remaining portion of the budget is for project management and contingency. This capital outlay would be recouped through the projected energy savings.

Recommended Action:

Direct staff to pursue a solar project as a city-owned asset and to procure using bond refinancing dollars, if available, or through traditional financing.

Attachments:

A. Conceptual Site Plan
B. NREL Report
C. Most Recent SCE bill for the WWTP
D. Phasing Example