

# City of San Leandro's Innovative Energy Efficiency and Renewable Energy Deployment Project



## Brief Summary

The Innovative Energy Efficiency and Renewable Energy Deployment Project (project) deployed energy-saving measures at the City of San Leandro's Water Pollution Control Plant (WPCP) to help meet the goals of the 2009 *Climate Action Plan: A Vision of a Sustainable San Leandro*. Climate Action Plan (CAP) goals include reducing community-wide greenhouse gas (GHG) emissions by 25 percent below 2005 levels by 2020. Utilizing the most recent GHG emissions inventory numbers from 2017, this goal is well on its way to being met, with data showing a 20 percent reduction. The project is expected to reduce over 2.7 million pounds (lbs.) of GHG emissions annually. One year of data is being gathered for verification and will help the City of San Leandro (city) to

meet its CAP goal, to mitigate the impacts of climate change, and contribute to meeting the State's energy efficiency and GHG emission reduction goals.

Located in a disadvantaged community, San Leandro's WPCP has the largest energy demand of all the city's facilities. There was an immediate need to deploy creative and innovative energy efficiency and renewable energy technologies to decrease energy consumption, reduce GHG emissions, and create resiliency. The project involved construction of a 1-megawatt solar photovoltaic (PV) system, new heating, ventilation, and air conditioning (HVAC) controls and interior/exterior light-emitting diode (LED) lighting retrofits and provided an opportunity to demonstrate and showcase the benefits of innovative efficiency projects to other local governments. The project was launched in January 2018 and the WPCP received the Permit to Operate the integrated solar PV system from Pacific Gas & Electric (PG&E) in May 2020.

### Lead Agency and Partnerships

The lead agency, City of San Leandro, partnered with Climatec, Bockman & Woody Electric Co., SunPower, and US Energy Services. Critical funding was provided by the United States Department of Energy's (DOE) American Recovery and Reinvestment Act of 2009 (ARRA) program, administered by the California Energy Commission (CEC).

### Drivers

The city is dedicated to the aggressive but achievable goals of reducing GHG emissions and combatting climate change. With support from CEC staff, the city prioritized and implemented this project to help meet the goals set in the CAP.

### Engagement Process

The city and Climatec led public outreach efforts to showcase project results and then provided the knowledge gained, results, and lessons learned to other local governments. The city also utilized the project as an opportunity to lead by example and encourage community members to save energy and utilize innovative technologies in a sustainable manner.

The project savings from energy efficiency and production of on-site renewable energy, estimated at \$10+ million over 30 years, will be reinvested in the community, most notably by eliminating or reducing future ratepayer increases, thereby providing direct benefits to the city's disadvantaged communities.

### Climate Impact Area

The city is a medium-sized suburban town in Alameda County, with a current population of approximately 90,000. This region is prone to a variety of climate impacts, including rising temperatures, utility public safety power shutoffs (PSPS), heavy rainstorms, and compromised air quality. Increasing resiliency by providing uninterrupted power onsite at the WPCP allows the city to keep critical health and safety infrastructure online during PSPS events and emergency weather situations. The project is expected to

reduce over 2.7 million lbs. of GHG emissions annually, which will help the city reach established GHG reduction goals and mitigate localized climate change impacts. Solar energy produced by the project is monitored by a third-party contractor to ensure that savings goals are being met.

## Funding Sources

The City of San Leandro was awarded \$1,995,963 in funding from CEC, and the city provided \$1,922,905 in match funding for the project.

## Research and Data

As part of an energy audit performed in 2016, Climatec benchmarked the site and developed an Energy Use Intensity (EUI) value for the WPCP. EUI is a measure of the facility's annual energy use in thousands of British thermal units (Btu) which is divided by conditioned square footage. The EUI is then compared to median EUI values for similar facility types based on data collected by the DOE Energy Information Administration (the recommended benchmark for all buildings). This pre-project comparison indicated an opportunity for the city to engage in energy efficiency improvements, e.g. LED streetlights, energy-efficient HVAC, building management systems, irrigation clocks, interior/exterior lighting, and renewable generation. Post-project, with three months of data collected (June through August 2020), the project showed a 17 percent reduction in EUI, with further reductions anticipated. The WPCP will be consistently benchmarked to sustain energy efficiency, produce optimal power, and continue to reduce energy use going forward.

## Challenges

Challenges included developing plans and strategies for the project, as well as working with a regulatory agency. The original location proposed for the PV panels was not approved due to concerns of a possible jurisdictional wetlands determination. To avoid this, existing drying beds used in WPCP operations were re-purposed to locate the panels, which required modifications to onsite processes.

## Outcomes

Key outcomes of this Project include:

- Reduced GHG emissions
- Significantly reduced operating costs
- Anticipated reduction in future rate increases to ratepayers
- Improved resiliency for PSPS events
- Achieved progress toward Climate Action Plan goals
- Promoted sustainability
- Received positive public recognition
- Engaged community participation

## Replicability

Wastewater treatment plants are typically the highest energy-consuming infrastructure operated by a city or sanitary district. The project provides a showcase of the combination of energy-efficiency and renewable energy to demonstrate the benefits of reducing energy use that can be transferred to other jurisdictions across California. This is particularly important as wastewater treatment plants will likely continue to use more energy to recycle water and conduct tertiary treatment to treat wastewater for beneficial re-use that improves water resiliency and reduces the impacts from drought in California.

## Additional Resources

- [City of San Leandro's Sustainability & Climate Action Plan](#)
- [City of San Leandro's Smart City Website](#)

## Further Information

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