City of San José

THE OPPORTUNITY

With over a million residents living and working in the City of San José, the heart of California's Silicon Valley, City officials knew a commitment to sustainability was paramount to ensuring the ongoing safety and resiliency of this growing metropolis. In 2007, the City introduced its Green Vision, setting 10 ambitious goals over 15 years for environmental protection and economic development. Two of those goals are to replace 100 percent of City streetlights with smart, zero-emission lighting, and to reduce per capita energy use by 50 percent. In 2018, the City introduced its Climate Smart San José plan, setting nine new goals for the low-carbon, energy efficient future of San José. Along with the City-wide LED streetlight retrofit, the construction of solar canopies at seven sites across the City, totaling 1.33 megawatts, has given San José a head start on its goal of transitioning to a renewable energy future.

THE PARTNERSHIP

In 2014, the City of San José partnered with ENGIE Services U.S. (ENGIE), and began installing smart, energy-efficient streetlights city-wide – coupling energy efficient LED streetlights with communication control systems. The smart streetlights' communications capability enables the lights to be monitored and programmed to dim when appropriate for greater energy savings. Additional applications, including real-time energy reporting, help enhance streetlight maintenance and provide other problem alerts. This groundbreaking program was launched after years of meticulous planning following the City's commitment to Goal 9 of its Green Vision plan. Initially, the San José Streetlight Policy was revised to help address the City's energy and hazardous waste reduction goals. The policy also provided directives to minimize light pollution by protecting the night sky for astronomical research work by Lick Observatory. Then, the City began to test "smart" LED streetlights that improve energy efficiency, which have the ability to

Program Highlights

- Expected to save the City $30MM and cut energy costs by more than half over the life of the program
- Expected to achieve cumulative savings of 7,200,000 kWh annually
- City-wide LED streetlight upgrades avoid carbon emissions of 5,000 metric tons annually, the equivalent to removing 1,050 passenger cars from the road
- San José is on track to be the first U.S. city to install smart, energy efficient streetlights city-wide

Technical Scope

- Installed over 18,100 smart streetlights, replacing low-pressure sodium units with LEDs
- Installed a total of 1.33 MW of solar photovoltaic (PV) at seven sites including community centers, fire and police stations, and a public library

Technical Scope (continued)

- Upgraded the HVAC rooftop unit at the Shirakawa Community Center
- Replaced the chiller at the San José Museum of Art

be controlled remotely to protect the night sky. The last step before implementation was when streetlight pilots and demonstration projects were deployed in residential and industrial areas to evaluate power line and wireless communication and control systems, as well as to garner feedback from the public.

LEDs allow for more precise optical control of light emission so that streetlight fixtures can produce directional light distribution more efficiently than older LPS and HPS streetlights. Appearing brighter than the legacy yellow sodium vapor lights, these LEDs are also "smarter" and help to save energy, reduce carbon emissions and redirect utility budget costs to support other City initiatives that improve San José residents' quality of life.

This comprehensive streetlight conversion project was funded by a combination of paid-from-savings opportunities, federal grants, and local improvement and development project funds, including a significant energy utility rebate.

3 DIMENSIONS OF IMPACT

ENGIE is committed to building three dimensions of impact in every customer's future:

Supporting People – .

- The new smart streetlights provide a more natural white light than conventional streetlights, improving nighttime visibility through improved color rendering, boosting the safety of nighttime drivers, bicyclists, and pedestrians
- LED lighting helps to preserve the night sky in late evenings for astronomical research at the Lick Observatory
- LEDs have more than double the lifespan of conventional streetlights, needing less frequent replacement, reducing the amount of time technicians spend replacing bulb heads

Saving Money –

- LED lights, due to their long lifespan, reduce the City's energy costs by more than half over the life of the program
- The smart streetlights provide real-time reporting of energy usage for energy billing and communicate alerts on non-operating streetlights for improved response
- Over the life of the program, the City is expected to save $30 million

Protecting the Environment –

- Converting to LED streetlights will help advance San José's goal to become a clean, zero-waste city, as LED's can be recycled and do not contain hazardous materials such as mercury found in legacy streetlights
- The overall energy reductions from the project lower San José's carbon footprint by 5,000 metric tons annually, the equivalent to removing 1,050 passenger cars from the road
- The final phase of the partnership bolsters San José's sustainability efforts beyond smart streetlights: the City installed 1.33 MW of solar PV across seven sites and implemented HVAC upgrades at two major sites in a continued energy partnership with ENGIE