



# Jefferson Elementary School District



“The Board of Trustees and administration are thrilled with the performance of our energy project and the impact that over \$16 million in savings will have on our General Fund. These dollars can be reinvested back into the classroom instead of paying utility bills every month.”

Bernard Vidales, Superintendent, Jefferson Elementary School District

## THE OPPORTUNITY

Jefferson Elementary School District (JESD) in San Mateo County, California serves over 6,000 students from kindergarten through 8th grade. In the face of significant budget cuts in recent years, District leaders sought a solution to put dollars back into the classroom, while reducing their carbon footprint and modeling environmental stewardship in the community. Just as importantly, administrators and teachers wanted to empower students through the introduction of 21st-century learning tools and STEM educational opportunities.

## THE PARTNERSHIP

In 2012, the District partnered with ENGIE Services U.S. (ENGIE) to fulfill their vision to save critical operating dollars by going green in a fiscally responsible way. The comprehensive project included installing solar photovoltaic (PV) panels on parking canopies or ground mounts at all school sites, improving indoor and outdoor lighting, installing an electric vehicle charging station, and making improvements to the HVAC infrastructure for better air quality and efficiency. In addition, an LCD display showing real-time energy production from the solar system was installed at the District office.

## Program Highlights

- Saves the District \$16.8MM over the 25-year project lifetime
- Reduces the District's utility cost by 90%
- Provides clean, renewable solar PV technology at all school sites
- Lowers carbon emissions by over 2.2 million pounds, equivalent to the carbon sequestered annually by 818 acres of U.S. forests
- Improves indoor and outdoor lighting and air quality
- Engages 500 students each year in custom-designed Growing Stems for STEM educational program

## Technical Scope

- 1,336 kW of PV solar power on parking canopies or ground mount systems across all school sites
- Electric vehicle charging stations at the District office



### Technical Scope (continued)

- 2,200 retrofitted lighting fixtures across the District, including interior and exterior LED hi-bay fixtures in gyms and multi-purpose rooms
- HVAC infrastructure upgrades with new air handling units at two sites and boiler replacements at seven sites
- LCD display of real-time energy production installed at the District office
- Utilityvision™ Continuous Monitoring Platform

The program is continuously monitored using Utilityvision™ which provides detailed energy and operating data that can be used for facility control improvements and rate optimization. The \$12 million project is paid for in part with funds from the 2012 Measure I bond. \$700,000 comes from the California Solar Initiative, which provides performance-based incentives for solar energy produced at the District during the program's first five years.

### A CUTTING EDGE STEM EDUCATION PROGRAM

ENGIE's education team and JESD leaders collaboratively designed the Growing Stems for STEM educational program to turn classrooms into living laboratories. This project was developed as a part of a greater bond program effort to go green and introduce solar power, energy efficiency, and gardening into District classrooms. The program engages 500 3rd through 8th grade students with hands-on activities and Common Core standards-aligned curriculum each year.

As part of the enriched STEM education offering, students received hands-on learning kits, tailored to grade level, including 'solar suitcases' which help students understand how solar photovoltaic energy technology works. Additionally, ENGIE engaged 16 teachers in over 14 hours of STEM-focused professional development opportunities to help them link the solar energy and energy efficiency improvements across the District with STEM learning in the classroom. Another professional development session is currently in the planning phases and it will connect solar energy, energy efficiency and sustainability with gardening, thus completing the Growing Stems for STEM program sequence.

Growing Stems for STEM expands Jefferson's gardening program by helping students understand how energy from the sun not only powers plant photosynthesis and the water cycle but also serves as an abundant source of electricity for schools and classrooms. Students come away with a greater sense of their own environmental impact.

### 3 DIMENSIONS OF IMPACT

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



**Supporting People**



**Saving Money**



**Protecting the Environment**

The renewable energy project is outperforming original savings estimates and will achieve \$16.8 million in savings over the lifetime of the project with anticipated solar generation of 1,612,550 kWh per year across the District. In addition to saving critical operating dollars, the program inspired students through the innovative STEM-focused education program. Through teacher engagement and professional development, teachers and staff learned to understand and utilize the project's technological components in their classrooms.

By connecting environmentally responsible, cost-saving energy projects with enriching, standards-based STEM classroom activities, the District continues to increase student engagement, enhance classroom learning and improve quality of life for students and staff. HVAC upgrades have improved classroom air quality, humidity and temperature controls, and better lighting supports student attention and engagement.

All of these successes have cemented Jefferson ESD's leadership across the region, making the District a model of fiscal and environmental stewardship. The District's utility cost decreased by 90 percent and the project reduced carbon emissions by over 2.2 million pounds, equivalent to keeping 770 cars off the road each year.