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# Siemens helps San Dieguito Union High School District address aging infrastructure to improve their learning environment

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Encinitas, California – The San Dieguito Union High School District (SDUHSD) has a long history as a California Distinguished School district that provides its students with academic and extracurricular programs to help them excel both at school and beyond.

As a result of rising energy costs SDUHSD worked with its local utility provider to outline the groundwork for a Master Energy Plan supported by the California High Performing Schools Initiative. In 2005, SDUHSD faced visible and hidden challenges from aging infrastructure and large operational costs due to rising energy prices. Thus, they issued a request for proposal (RFP) and selected the Building Technologies division of Siemens Industry, Inc., to perform energy audits in two schools. This audit identified facility improvement measures to enhance indoor air quality and improve system controllability. Today, Siemens and SDUHSD have created a strong partnership that's helping the district improve the learning and teaching environment with better designed, efficiently managed, and healthier facilities.

## Objectives

SDUHSD is a high school district in California with nine middle schools and high schools. All told, the district's buildings total more than 1 million square feet across 150 buildings. Although three of the district's schools had an Energy Management System (EMS), SDUHSD recognized the opportunity to minimize energy costs by expanding the EMS throughout the district.

SDUHSD established the following objectives for its partnership with Siemens:

- Reduce energy usage and reinvest the cost savings to pay for deferred maintenance, facility upgrades, and energy services
- Develop and implement a Master Energy Plan in conjunction with the district and local utility
- Improve operational efficiency, indoor environmental quality, and environmental stewardship efforts with greater energy efficiencies and capital improvements
- Provide facility teams with more awareness and transparency of district wide usage
- Help improve student performance with more comfortable and healthier facilities

Perhaps more important than overcoming its aging infrastructure and achieving the above objectives, SDUHSD wanted to improve the learning environment in its schools, creating a comfortable atmosphere more conducive to student learning.

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## Solutions

To help SDUHSD achieve its energy savings and infrastructure goals, Siemens performed energy audits in two of the district's schools: Torrey Pines High School and Diegueño Middle School. Through the audit, Siemens identified a series of facility improvement measures (FIMs) to be executed over multiple phases:

- Retrofit aging HVAC units with newer, more reliable, and energy efficient equipment in a variety of facilities
- Install air conditioning equipment in buildings where it did not previously exist
- Implement EMS at Torrey Pines High School with a more comprehensive solution that provides facility managers with:
  - More control over systems
  - Ability to respond more quickly to comfort and safety issues

The multi-phased approach to implementing these FIMs proved successful for SDUHSD; thus, the district issued a new Request for Quotation (RFQ) in 2009 to expand the energy efficiency efforts throughout the district. After thorough evaluation of the RFQ respondents, SDUHSD selected Siemens once again for district wide Energy Conservation and Environmental Services.

Together, Siemens and SDUHSD will work toward implementing sustainable energy plans for high-performance buildings throughout the district. Siemens will identify ways to reduce the district's electricity, gas, and water consumption; help improve operational budgets with reduction measures; and apply for energy and water rebate programs to help the district to reinvest in its infrastructure.

Additional future improvements to SDUHSD facilities include plans for:

- Lighting retrofits with new, more efficient fixtures in several facilities
- Domestic water upgrades to advance conservation efforts

Siemens and SDUHSD are also working together to implement Energy Dashboards at selected school sites to raise awareness of the positive impact that sustainability efforts are having in their schools. In open areas, the monitors will stream energy data from throughout the district, showing how much (or little) energy the buildings use and how students, faculty, and staff can further improve the sustainability of the district's buildings.

*"Because of the success of our district-wide master facilities plan and our relationship with Siemens, we look forward to continuing our partnership to develop sustainable, high-performance buildings that our communities can be proud to support."*

—John Addleman  
Director of Planning & Financial Management  
San Dieguito Union High School District

*"Siemens has helped us replace equipment that was more than 30 years old, and much of it was a hodgepodge leftover from various retrofits and remodels over the years. The improvements we've made have had a significant positive impact on our energy usage and costs. Every step of the way, Siemens has delivered projects that are on time, on budget, and as clean as can be; they've truly made our jobs and maintenance efforts much easier."*

—Russ Thornton  
Executive Director of Operations  
San Dieguito Union High School District

## Results

Since 2005, Siemens solutions have helped SDUHSD achieve its 500,000 kWh annual savings, putting as much as \$45,000 back into the district's facilities budget every year. In addition to these savings, SDUHSD has also applied for and received local utility rebates.

Today, the HVAC improvements at Torrey Pines High School are evident to students and teachers alike. SDUHSD has received feedback from staff and students that buildings are no longer too hot or too cold. The improved building comfort has helped create an environment more conducive to learning and teaching. In this environment, students can maintain their focus throughout the day and teachers do not need to take away from instructional time to respond to climate issues.

Beyond comfort, students are learning the benefits of becoming better environmental stewards. Students from Torrey Pines High School and San Dieguito Academy have had the opportunity to work with Siemens on some of the energy audit processes, helping identify light fixtures that need to be upgraded, nonfunctioning thermostat controls to be replaced, and other conservation efforts that help reduce the carbon footprint of SDUHSD. In some cases, the students are encouraging teachers to turn off lights and workstations when they're not in use, and promoting water, energy, and global environmental awareness.

SDUHSD is working to expand these hands-on learning experiences through student energy conservation contests and other programs—further improving the students' educational opportunities in the district.

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