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The Silicon Valley Wire

The latest news from the electrical industry in Silicon Valley

1st Quarter 2011

Electric Cars Are Charging Up Silicon Valley, Thanks To Sprig Electric

As the demand for electric cars increases, Sprig Electric is installing electric car charging stations to power them.

Silicon Valley is getting charged up!

Because of a growing demand for electric cars, Sprig Electric is rolling out installations of charging docks around the San Jose area.

AN electric car uses DC electricity from onboard batteries to power its electric motor. Most electric vehicles have a range of 100 miles and, like a cell phone, they need to be recharged on a regular basis. Much like a gas pump adds gas to a normal car, an electric vehicle charging station adds electricity to an electric car by charging its batteries.

"Projections indicate there will be 250,000 electric vehicles in the Bay Area 3 years from now," said Jim Conlow, Division Manager for Energy Solutions at Sprig Electric. "Sprig Electric

is on track to become a leader in the charging installation market."

Sprig installs private residential charging stations, as well as commercial charging docks for businesses that want to provide charging facilities for customers and employees. In addition to private charging stations, there are about 400 public charging stations in California, with 15 of those in the San Jose area.

Although electric car distribution is slated for a big push in 2012, several different models of electric cars are being rolled out this year, including the Nissan Leaf, the Chevy Volt, and the Tesla Roadster.



A Commercial Electric Car Charging Station at Coulomb Technologies.

The development of the Nissan Leaf helped drive Sprig Electric's entrance into the charging market. In order to buy a Nissan Leaf, customers must agree to install a home charging unit or sign a waiver that they've installed their own charging equipment.

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IBEW Local 332 Installer Paul Pulido installs a Residential Electric Car Charger.

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IBEW Local 332 Helps Create Green Jobs



Pfeiffer Electric Solar for East Side Union High School District

Silicon Valley Is Getting Charged Up!

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Jim Conlow, Division Manager of Energy Solutions, Sprig Electric.

"AeroVironment, the manufacturer of the Nissan Leaf charging station, contacted us in 2009 to see if we would be interested in installing the car chargers," said Rick Clinton, Vice President of Sprig Electric.



ELECTRIC CAR CHARGING PRIMER

AVERAGE ELECTRIC CAR RANGE:
100 miles

AVERAGE COMMUTE: 78% of all commutes are less than 40 miles round-trip

AVERAGE COST TO INSTALL HOME CHARGING UNIT: \$2200

HOME CHARGING DOCK VOLTAGE:
Usually 220 Volts, charges a car in 6-8 hours

ELECTRICAL COST TO FULLY CHARGE A VEHICLE:
About \$3 for 100 miles

COMMERCIAL CHARGING DOCK VOLTAGE: Usually 220 Volts; can be 500 volts (under development; charges a car in 15-30 minutes)

CHARGING DOCK MANUFACTURERS:
AeroVironmnet, Coulomb Technologies, ECOtality, Clipper Creek, General Electric, PEP Stations, Better Place, Leviton, Schneider, Eaton, Siemens, EV connect, Sunpods, EV Charge America, OP Connect, Sema Connect, Shorepower, SXP

CHARGING DOCK INSTALLERS:
Sprig Electric, San Jose

PUBLIC CHARGING STATIONS IN CALIFORNIA: 381

PUBLIC CHARGING STATIONS IN SAN JOSE AREA: 15

NUMBER OF NISSAN LEAFS TO BE RELEASED THIS YEAR: 25,000

"Our business has grown from there, and they help us train our electricians to install the Nissan Leaf Home Charging Docks, a process that requires special certification. We also are installing commercial charging units in Nissan Dealerships in Southern California," said Clinton.

When an electrician from Sprig Electric installs a Nissan Leaf Home Charging Dock, the process begins with an assessment of the customer's electric system. The electric panels must have enough capacity for the car charger to be added. Sprig Electric has already completed over 250 home assessments.

Once the assessment is approved, the electrician then installs a dedicated Level 2 240 Volt line, roughly the same kind of line required by an electric dryer. A Level 2 charging dock can charge a Nissan Leaf in 6 to 8 hours. (A regular 110 volt line, by contrast, could take up to 16 hours to charge the vehicle).

The charging dock is the size of a large Frisbee and is usually installed in the garage. Charging is a simple process- the cord from the charging dock is plugged into the car, and locked into place. The car then charges until it is fully amped. A federal tax credit offsets about half of the vehicle charger and installation cost, which is around \$2000.

The cost of the charge, in terms of electrical usage, is about \$3, or the price of a gallon of gas. A complete charge in a Nissan Leaf allows you to travel about 100 miles.

Sprig Electric is also working with Coulomb Technologies, Campbell, to install commercial charging stations for businesses.

Sprig Electric has also installed Coulomb Technologies charging stations at Enterprise Rental Car locations.

"The Coulomb Technologies

charging stations are all networked," said Conlow. "They can all talk to each other and are connected 24/7 to a monitoring station. The network is available for access on a smart phone, so you can use your phone to find a location."

Coulomb Technologies received \$15 million in federal stimulus funding to develop 5000 charging stations through a program called Charge Point America. Some 1700 of these charging stations will be in California, split between public and private sites.

"When we are installing a Coulomb docking station at a commercial site, we typically install a transformer and panel, in addition to the docking station," said Conlow. The Coulomb docking stations use access control so that you can swipe the unit with a card to gain access. We bring electricity in from the electric room or from subpanels if there



Sprig Electric has installed electric car charging stations at NETFLIX.

are any around the campus to tap into."

As Sprig Electric moves more into the electric car market, it underscores its mission to become a leader in green energy installation. "Electric cars not only reduce our

dependence on foreign oil, they help to curb greenhouse gas emissions, and significantly reduce urban air pollution," said Conlow. "We believe by 2020, one-third of all US cars will be either battery, electric, or plug-in hybrid."

For more information about Sprig Electric's electric car charging installations, contact Jim Conlow at jconlow@sprigelectric.com, 408.298.3134 ext. 308, or Jim Boyd at jboyd@sprigelectric.com, 408.298.3134, ext 283.

**SPRIG ELECTRIC
PROJECT TEAM
ELECTRICAL
CAR CHARGING
INSTALLATION:**

CONTRACTOR:

Sprig Electric
1860 S. 10th Street
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IBEW LOCAL 332 installed solar on its San Jose headquarters in 2000, the first commercial solar installation in San Jose.

It's often said that Silicon Valley reinvents itself every ten years. One of the Valley's latest evolutions is the development of clean tech.

VENTURE capitalists and entrepreneurs are collaborating to create a green industry based on improvements to solar panels, development of electric cars, fuel cell technology, and exploration of other green options.
The Valley's NECA-IBEW (National Electrical Contractors

Association and International Brotherhood of Electrical Workers) electrical contractors are partners in the clean tech revolution that is sweeping the region. They have completed many of the large-scale solar installations in Silicon Valley and have funded training for electricians in renewable energy techniques.

NECA-IBEW has always been on the forefront of implementing sustainable technologies, pioneering eco-friendly energy sources such as solar and wind, developing groundbreaking training programs that are models of success—and proving how cost-effective they can be.
NECA-IBEW launched their first photovoltaic (PV) training program for solar installation in 1983. The program is still a model today.

In 2000, IBEW Local 332 in San Jose put its PV skills on display at its headquarters, building the city's first large-scale commercial solar electric system, hailed by civic leaders as a model of green building.
NECA-IBEW electrical contractors are adept at building to LEED standards, and are proud members of the United States Green Building Council (USGBC).
NECA-IBEW is prepared to power Silicon Valley and the nation into the future.

Rosendin Electric Installs San Jose's Largest Municipal Solar Project At Silicon Valley's New Airport



Rosendin Electric installed 4,680 solar panels covering 3.4 acres on the roof of the new CONRAC rental car facility at the San Jose Airport.

The new CONRAC rental car facility at Norman Y. Mineta San Jose International Airport uses a lot of electricity to power its 1.8 million square feet of space. That electric bill got slashed last year when Rosendin Electric installed a 1.12 megawatt solar array that provides 20%-30% of the building's power load.



Electricians from IBEW Local 332 in San Jose installed the solar panels.

THE \$5 million solar project will generate an estimated 1.7 million kilowatt hours of solar energy each year, making it one of the largest airport solar installations in the country. The building's 4,680 rooftop solar panels cover 3.4 acres, an array that would extend more than four miles if laid end to end. The solar panels were manufactured by Canadian Solar USA, San Ramon.

The panels will enable the airport to curtail the release of 1,284 tons of carbon dioxide each year, the equivalent of removing 235 passenger vehicles from the road or the amount of carbon that 6,422 trees would sequester annually.

The solar array is the crowning touch to the new consolidated rental car facility and public parking garage that is built across from the new Terminal B. The facility provides 3,000 spaces for rental car operations, customer service counters, a three-level indoor elevated fueling station and 350 public parking spaces.

"The facility is very sophisticated and uses a lot of electricity," said Don Dixon,

Senior Project Manager for Rosendin Electric. "We needed to make sure we met all the power criteria."

The panels were installed on the facility's roof at a 10% tilt on the south end of the building, on innovative new racks built by UniRac that contour to an uneven roof.

"The building's roof isn't flat; it has slopes and drains," said Dixon. "Unirac built a system of relatively non-penetrating racks that provide a support for mini arrays that were easy to install and are flexible to use."

Installation of the system took four months; 12 electricians from the International Brotherhood of Electrical Workers (IBEW) Local 332 worked on building and wiring the infrastructure. Because the system was installed on the rooftop seven stories up, all the materials were craned to the site. Another concern during installation was keeping debris from blowing off the rooftop, so that no debris landed on the runways.

"It's a great facility for the City of San Jose," said Dixon, "and a facility the airport really needed. And its solar electric system is definitely a plus."

For more information about Rosendin Electric, contact Don Dixon at ddixon@rosendin.com or call him at 408.639.0181.



Installers drove materials around the 3.4 acre site, on top of a 1.8 million square foot building.

SAN JOSE INTERNATIONAL AIRPORT SOLAR ELECTRIC PROJECT SNAPSHOT:

- CLIENT:** City of San Jose
- BUILDING:** CONRAC Rental Car Facility
- SQUARE FOOTAGE:** 1.8 million square feet
- SOLAR ELECTRIC SYSTEM BUILDOUT:** Rosendin Electric
- PROJECT MANAGEMENT:** Don Dixon, Senior Project Manager
- ELECTRICIANS:** 12 electricians from the International Brotherhood of Electrical Workers (IBEW) Local 332, San Jose
- SIZE OF PROJECT:** 1.12 megawatts
- NUMBER OF SOLAR PANELS:** 4,680 covering 3.4 acres
- ENERGY SAVINGS:** Slashes energy costs by 20%-30%
- TREES SAVED:** 6,422 trees each year by reducing carbon emission by more than 1,284 metric tons

Pfeiffer Electric Wires Largest Catholic Solar Initiative In The U.S. For San Jose Diocese

The Diocese of San Jose is now generating big energy savings for five local parishes and schools, and one cemetery, thanks to solar systems wired at the sites by Pfeiffer Electric. The Diocese implemented the solar energy program this year as part of its recently enacted green initiative. It is the largest solar energy project ever authorized by the Catholic Church in the U.S.

CATHOLIC GREEN INITIATIVE OF SANTA CLARA COUNTY SOLAR ELECTRIC FAST FACTS:

- SITES:**
5 Parish/schools; 1 cemetery:
- Holy Spirit, San Jose
 - Saint Christopher, San Jose
 - Queen of Apostles, San Jose
 - Saint Lucy, Campbell
 - Gate of Heaven Cemetery, Los Altos
- NUMBER OF SOLAR PANELS:**
5,000
- SIZE OF PROJECT:**
886 kW
- KILOWATT HOURS GENERATED:**
1.4 million kilowatt hours per year
- ENERGY SAVINGS:**
Covers 70% of each sites total energy needs
- CARBON DIOXIDE ELIMINATION:**
21,000 tons total



Gates of Heaven Cemetery

THE local solar energy systems are expected to generate an estimated 1.4 million kilowatt hours of clean energy in the first full year of operation, covering 70% of each site's total energy needs. "We believe it is our responsibility to examine how we use and share the goods of the earth, and what we pass on to future generations," said Scott Springborn, project manager for the Diocese and chair of the Energy Subcommittee of the Catholic Green Initiative of Santa Clara. "We want to identify and encourage green initiatives."

The five sites include Holy Spirit, Holy Family, Saint Christopher and Queen of Apostles, all in San Jose and Saint Lucy in Campbell. Gate of Heaven Cemetery in Los Altos also received a solar electric system. The combined systems consist of more than 5,000 solar panels that occupy 70,000 square feet of mostly rooftop space. The solar initiatives will eliminate approximately 21,000 tons of carbon dioxide throughout its operating life span.

Pfeiffer Electric, who has worked with the Diocese on various projects for 40 years, wired the electrical infrastructure at each parish, providing the electrical service and tying the site into PG&E. Pat Pfeiffer, who acted as project manager, said the photovoltaic project included connection of electrical infrustacture at each site.

Pfeiffer Electric worked with a team of 24 electricians from the International Brotherhood of Electrical Workers (IBEW) Local 332 in San Jose to complete the infrastructure for



The Queen of Apostles Church and School is served by a 128 kilowatt solar system wired by Pfeiffer Electric.



Holy Spirit's Solar system is part of a five site solar initiative from the Diocese of San Jose.

the solar electric systems. All of the sites received systems for both the church and the school. Holy Spirit has the largest system at 210kW; Holy Family, 185 kW; Queen of Apostles, 128 kW; Saint Lucy, 90kW; and Saint Christopher, 115kW.

"At the Gates of Heaven Cemetery, we installed a 160kW system in an adjoining field to provide electricity for the maintenance buildings and fountains," Pfeiffer said.

"This is the kind of project that you feel good about," added Pfeiffer. "Not only do we have a long term relationship working with the Catholic Diocese, but we were able to work on a project that directly contributes to the well-being of the planet."

For more information about Pfeiffer Electric, Co., contact Pat Pfeiffer at pat@pfeifferelectric.com or call 408.436.8523.

CATHOLIC GREEN INITIATIVE OF SANTA CLARA COUNTY SOLAR ELECTRIC PROJECT TEAM:

- CLIENT:**
San Jose Catholic Diocese
- CLIENT'S REPRESENTATIVE:**
Ian Abell,
Director of Facilities,
Diocese of San Jose
- OTHER DIOCESE REPRESENTATIVES:**
Scott Springborn,
Chair of the Energy Subcommittee of the Catholic Green Initiative of Santa Clara
- FINANCING:**
Perpetual Energy Systems (PES)
- ELECTRICAL INFRASTRUCTURE:**
Pfeiffer Electric, Co., San Jose
- PROJECT MANAGER:**
Pat Pfeiffer
- SUPERINTENDENT:**
Bob Towle
- LEAD FOREMEN:**
Ken Bevington and
Anthony Pawlovich
- ELECTRICIANS:**
International Brotherhood of Electrical Workers (IBEW) Local 332



Members of the Green Jobs Corps during one of the solar training sessions held at the Joint Apprenticeship Training Center. The sessions were hosted by IBEW Local 332.

IBEW Local 332 Spearheads Green Jobs Program In San Jose For Underserved Youth

How do you get a job in green construction in San Jose if you have no experience?



Green Jobs Corps members listen to instruction on wiring a solar car.



Green Jobs Corps members test the solar panels on the cars they wired.

ONE way is to join the Green Jobs Corps, a local training and placement program that helps underserved young people obtain hands-on work experience in the green jobs market.

The Green Jobs Corps, which serves 100 local participants, is sponsored by the International Brotherhood of Electrical Workers (IBEW) Local 332 in San Jose as well as by other local business and educational organizations. Participants explore various green career tracks while being paid to attend training and job readiness classes. They also receive paid internships and job placement opportunities.

EXPLORE ENERGY EFFICIENCY

As part of its commitment to the program, IBEW Local 332 offers recruits an opportunity to explore the field of energy efficiency/energy auditing during a two-day green work shop in solar photovoltaic generated electricity held at the Santa Clara County Electrical Joint Apprenticeship and Training Program (JATC)

headquarters in San Jose.

During the JATC intensive, the recruits learn to build and power solar cars. In order to successfully finalize the program, participants must also demonstrate their newly learned green job skills by completing 100 hours of community service at a local school district.



Green Jobs Corps members at the NECA-IBEW Electrical Training Center.

IBEW Local 332 has always been a leader in promoting green technology. Local 332 put solar electric panels on its own headquarters in 2000, gaining national recognition for installing the first full-scale

commercial solar electric system in the City of San Jose. Its electricians are skilled at implementation of various sustainable technologies, including solar photovoltaic generated electricity and wind turbines.

IBEW PARTNERS WITH GREEN JOB CORPS

These days, IBEW Local 332 is showing its dedication to Santa Clara County's green economy by partnering with the Greater South Bay Green Jobs Corps. The program, funded by an American Recovery and Reinvestment Act (ARRA) grant, is for at-risk older youth and adults to learn a green career.

The program consists of four tracks: efficient energy and energy auditing; green construction; water utilities and green waste. The Green Jobs Corps is operated out of San Jose One Stop, the local sector of the Workforce Investment Act program.

IBEW Local 332 gave a \$50,000 in-kind donation to the Workforce Institute (matched by the state) to help fund the



Photo courtesy of IBEW Local 332



Photo courtesy of IBEW Local 332



Photo courtesy of IBEW Local 332



Photo courtesy of IBEW Local 332



Photo courtesy of IBEW Local 332

Day campers at the Children's Discovery Museum in San Jose test the solar cars that they built with the assistance of The Green Jobs Corps participants and IBEW Local 332.

efficient energy segment of the program. Participants for the program were recruited from students at San Jose City College and Evergreen Valley College, as well as by the distribution of flyers downtown and at community centers.



Photo courtesy of IBEW Local 332

Green Jobs Corps members assembling their solar panel powered cars.

HANDS-ON TRAINING

To kick off the energy efficiency program, eight students recently gathered at the JATC's training facility for hands-on instruction. Participants learned the basic fundamentals of solar photovoltaic theory and then applied that information to build solar photovoltaic-powered cars. They also learned about apprenticeship opportunities with the JATC, and are eligible to apply for an apprenticeship at the JATC in any of the classifications.

Jamie Parker, one of the Green Job Corps participants, said he joined the program "to obtain a career that would make the

world and our community better."

IBEW PARTNERS WITH OTHERS

The JATC event was co-sponsored by San Jose City College, PG&E, and the Work2Future program.

"The curriculum was devised to provide a very basic understanding of electricity and portable tanks, as well as a basic mechanical exercise on gear ratios," said David Baer, Directory of Industry Development for IBEW Local 332 and instructor at the two day JATC event.



Photo courtesy of IBEW Local 332

Jackson Murtleon, who attended the Discovery Museum Summer Camp, shows off the solar car he built.

DISCOVERY MUSEUM MENTORS

Participants from the JATC later had an opportunity to show off their solar electric skills to middle school students attending summer camp at the Children's Discovery Museum.

Green Job Corp participants mentored individual Discovery Museum students, helping them to construct the solar cars and encouraging them to work together as a 'crew' following a plan. The Discovery Museum middle schoolers then exhibited their new skills by conducting a solar car demonstration.

SOLAR CAR DEMOS

The Discovery Museum program is part of a community service requirement designed to show fifth through eighth graders a practical and fun way to use math and science as it applies to the electrical construction industry.

The students at the Discovery Museum were eager to take the solar cars they had built out into the sun and then let them go to see what the cars would do. "The panels are connected to the car in a way that you can angle it to the sun," said Jackson Murtleon, one of the middle school students attending the camp.

ALUM ROCK STUDENTS

Green Jobs Corp participants also worked with middle school students at the Alum Rock Union Elementary School District (ARUSD) in a joint program sponsored by IBEW Local 332 and the Santa Clara Valley Chapter of the National Electrical Contractors Association (SCV-NECA), in conjunction with the San Benito/Santa Clara County

Building and Construction Trades Council and the ARUSD Construction Careers Agreement.

For more information on the Green Jobs Corps Training Program, please contact Daniel Rodriguez, Business Agent, drodriguez@ibew332.org or at 408.269.4332.

GREEN JOB CORPS PROJECT TEAM:

- PROGRAM:**
The Greater South Bay Green Job Corps
- PARTICIPANTS:**
100 underserved youth from Santa Clara County
- FUNDING:**
American Recovery and Reinvestment Act (ARRA) Grant
- HEADQUARTERS:**
San Jose One Stop
- ACTIVITIES:**
Paid training and job readiness classes in green technology; paid internships and job placement opportunities
- JOB TRACKS:**
Efficient energy/energy auditing; green construction; water utilities; green waste.
- ENERGY EFFICIENCY/ENERGY AUDITING SPONSOR:**
International Brotherhood of Electrical Workers (IBEW) 332, San Jose, David Baer, Director of Industry Development
- OTHER SPONSORS:**
San Jose City College; Evergreen Valley College; PG&E; Work2Future program
- MIDDLE SCHOOL COMMUNITY SERVICE COMPONENT:**
Alum Rock Union Elementary School District (ARUSD), with the International Brotherhood of Electrical Workers (IBEW) Local 332, the Santa Clara Valley Chapter of the National Electrical Contractors Association (SCV-NECA) and the Discovery Museum, San Jose

Pfeiffer Electric Installs Solar Panels On Six High Schools

3.7MW Solar Panels To Generate \$35 Million In Energy Savings

East Side Union High School District in San Jose extended its commitment to renewable energy this year with a massive 3.7 MW solar project at six local school sites that went online in June. Pfeifer Electric of San Jose installed the 16,000 solar panels, which are expected to provide a net return of \$37.7 million over the life of the project, and slash energy costs by 30%. The installation is one of the largest solar electric projects in Silicon Valley.

THE project sites are Andrew Hill High School; Evergreen Valley High School; Foothill High School; Independence High School; Santa Teresa High School; and W.C. Overfelt High School.

"This solar investment is good for the environment and good for the school," said Pat Pfeiffer, the owner of Pfeiffer Electric, who served as project manager at the high school sites.



Photo courtesy of Pfeiffer Electric

The project is projected to reduce energy costs by \$1.5 million the first year, and \$7.6 million over 5 years, according to school district officials. The solar panel installation is expected to reduce carbon emissions by more than 3,100 metric tons per year, equivalent to planting more than 980 acres of trees. Pfeiffer Electric installed all of the solar panels on parking lot structures that cover cars. The locations generate electricity for the entire site and are tied into PG&E service. "Putting the panels on parking structures eliminates a lot of



Photo courtesy of Pfeiffer Electric

Pfeiffer Electric installs solar panels on the "carports" of six school parking lots to slash energy costs by 30% for the East Side Union High School Districts.

problems that can arise when you put them on a roof and the roof fails later in time," said Pfeiffer. Pfeiffer Electric installed the panels on a Z channel racking system on the top of the parking structures, facing southeast. Each panel measures 3 feet by 5 feet and weighs about 50 pounds. Ten electricians from the International Brotherhood of Electrical Workers (IBEW) Local 332 in San Jose worked on the installation.

Independence High School received the largest solar installation, with 4,410 panels that produce over 1,000 kW. Evergreen Valley High School had 3,990 panels at 915kW. Santa Teresa High School received 3,360 panels for 770 kW. W.C. Overfelt High School received 2,268 panels at 508 kW and Foothill High School was the smallest installation at 420 panels for 95 kW.

The project had its challenges, including insuring safety of the parking lot structures during rainy conditions. Another obstacle was the difficulty of using lifts on the hillier sites, such as Evergreen Valley High School, to get underneath the structures to set the panels. Any panels

that weren't installed were brought back to the shop each night to prevent theft. Pfeiffer Electric is currently installing the electrical infrastructure for a megawatt of solar panels for the Jefferson Union High School district in San Mateo.

For more information about Pfeiffer Electric, contact Pat Pfeiffer at pat@pfeifferelectric.com or call 408.436.8523.

EAST SIDE UNION HIGH SCHOOL DISTRICT SOLAR ELECTRIC FAST FACTS:

SITES:
6 Schools: Andrew Hill High School; Evergreen Valley High School; Foothill High School; Independence High School; Santa Teresa High School and W.C. Overfelt High School

SIZE OF PROJECT:
3.7 MW

NUMBER OF SOLAR PANELS:
16,000

ENERGY SAVINGS:
Slashes energy costs by 30% (About \$1.5 million annually)

NET RETURN:
\$37.7 million over the life of the project

TREES SAVED:
980 acres of trees each year by reducing carbon emissions by more than 3,100 metric tons

EAST SIDE UNION HIGH SCHOOL DISTRICT SOLAR ELECTRIC PROJECT TEAM:

CLIENT:
East Side Union High School District /Chevron Energy Systems

CLIENT'S REPRESENTATIVE:
Barbara Springer, Construction Manager

SOLAR PANEL INSTALLATION:
Pfeiffer Electric, Co., San Jose

PROJECT MANAGER:
Pat Pfeiffer

SUPERINTENDENT:
Bob Towle

ELECTRICIANS:
International Brotherhood of Electrical Workers (IBEW) Local 332