

YOUR CLEAN ENERGY CONNECTION 2009



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Center for  
**Sustainable Energy**  
CALIFORNIA

### Your Clean Energy Connection

The California Center for Sustainable Energy is a nonprofit organization based in San Diego that helps Californian residents, businesses and public agencies save energy and generate clean, renewable energy through a variety of rebate, technical assistance and education programs. We focus on energy efficiency, renewable energy, alternative transportation, green building and climate change.

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## We're All Part of the Energy Connection

A message from Robert L. Noble and Irene M. Stillings



**THIS IS A GREAT TIME** for sustainability, not just here in San Diego, but throughout California and across the nation as leaders turn toward new energy strategies and policies, including many of the things we have supported at the California Center for Sustainable Energy for more than a decade.

It's not just the president or our governor who believe the time has come for renewable and efficient energy planning. It's leaders at every level, from forward-thinking mayors and corporate officers to LEED-certified homeowners – all looking for ways to conserve energy, save money, become energy independent and help preserve the planet. It's everyday people . . . like you and us.

At CCSE, we see great opportunities in 2010 for new energy partnerships as federal stimulus funds come to the region. A host of grants and awards have been made to local governments and organizations for clean generation projects, energy audits, whole-house retrofits, weatherization, green job workforce development and many other energy-related activities. We are already working with local government officials on one of the main building blocks of the upcoming energy evolution: property assessed clean

energy (PACE) financing. The PACE mechanism will allow residents to purchase solar energy systems and implement energy-efficiency measures with funding tied to their property taxes, not their mortgages. Stay tuned, because these programs are going to get under way during 2010.

***"It will take an entire nation to build a clean energy future. We're part of the energy connection, and we hope you will join us!"***

The past year was a time of tremendous growth and progress for CCSE. We completed major incentive programs for solar water heating and alternative fuel vehicles and were awarded two follow-on programs that will replace them. It was the first full year of our Energy Advisory Service that offers expertise and consulting services to commercial clients, and we expanded our Engineering Services.

During 2009, we processed the greatest annual number of California Solar Initiative (CSI) residential applications and incentives in the three-year-old program – as many in October

alone as in all of 2007. And we're moving through the rebate steps for both CSI residential and nonresidential twice as fast as originally planned. The first year of the Multifamily Affordable Solar Housing portion of CSI also has been a tremendous success in San Diego, with 100 percent of the program Track 1 funds reserved for current applications. You will read about many more CCSE successes in the following pages.

Our education programs continue to expand, with notable advancements in green job training. We've created resources for employers and job seekers and are working with government, professional, education and community groups to help develop the local green marketplace. We are a partner in two clean energy workforce training programs with stimulus funding, and there are more education projects to come.

We held some terrific public events promoting clean energy and sustainability throughout the year, putting our message and information before thousands of San Diegans. We championed energy issues throughout the county and the state and engaged in several collaborations with local, regional and statewide organizations. We hired new

people, including a director of education and outreach, an engineering manager, a distributed generation manager and other technical and administrative staff, growing our organization by 15 percent.

There is momentum now for cleaner, more efficient and less fossil fuel-dependent energy production as public awareness of the benefits provided by renewable and sustainable energy technologies steadily grows. At CCSE, we're clearly pleased to see things moving forward because there's still a long way to go. It will take an entire nation to build a clean energy future. We're part of the energy connection, and we hope you will join us.

Robert L. Noble, chairman, board of directors

Irene M. Stillings, executive director



Make the clean energy connection and learn what lots of homeowners already know – going solar makes sense. Visit us online at [www.energycenter.org/gosolar](http://www.energycenter.org/gosolar)



## Milestones 2009

**FOUNDED IN 1996**, the California Center for Sustainable Energy (CCSE) provides expertise and education as well as rebate programs, energy advising, engineering consulting and a wide array of other services and information critical to achieving energy independence and a cleaner, healthier planet. We approach these challenges within a framework of five sustainability planks that define our areas of focus.



### Renewable Energy

We offer technical support, incentives and general information needed to make smart choices about implementing solar and other renewable energy technologies.

- Responsible for incentivizing nearly 38,000 kilowatts of electric generation capacity
- Awarded incentives totaling about \$47 million
- Presented 45 workshops on solar photovoltaics and solar water heating to a broad range of stakeholders



### Energy Efficiency

We are committed to sharing objective, independent information and expertise with local businesses, residents and municipalities to help them implement energy efficiency.

- Major facility energy audits: 75
- More than 10,000 visitors to the Energy Resource Center
- Five staff certified as Home Energy Rating System raters
- Achieved energy savings exceeding 14 million kWh of electricity and 89,000 therms of natural gas for tax-exempt organizations
- Supported area governments in energy planning, grant applications and technical assistance



### Green Building

We assist San Diegans in identifying cost-saving opportunities that support healthy, efficient and sustainable homes and buildings.

- Presented workshops related to green building technologies and practices
- Hosted more than 300 residents at a green building expo in April
- Provided strategic green building consulting to several landmark developments in the region



### Transportation

We support education and efforts to increase the use of alternative fuel vehicles and transportation options that mitigate air quality problems.

- Completed two-year Fueling Alternatives vehicle rebate program with nearly \$2.6 million awarded and more than 515,000 gallons of gas per year saved by the vehicles purchased
- Selected to administer new statewide Air Resources Board electric and plug-in electric vehicle rebate program
- More than 600 people attended CCSE's Street Smart San Diego



### Climate Change

We help the community learn about greenhouse gas emissions, impacts of climate change and reducing their carbon footprint through education and outreach programs.

- CCSE energy-savings programs facilitated the elimination of nearly 14,000 tons of greenhouse gas emissions during 2009
- Developed carbon-related consulting services
- Gave 11 community presentations on impacts of climate change
- Launched the classroom program Green Learning Adventure for 5th-8th grade students

# Incentive Programs

*Renewable energy and transportation incentive programs that provide customer education, industry training and technical support*



CCSE is proud to work with members of the clean energy industry, businesses, government agencies, homeowners and others in our community to implement renewable energy options in San Diego and beyond. We administer several state rebate programs that support the development and installation of solar and other clean energy technologies and the adoption of greener transportation.

During 2009, the Incentive Program teams completed successful incentive programs for solar water heating and alternative fuel vehicles, launched a solar program for low-income housing and experienced rapid growth in residential solar installation applications. The teams also presented numerous educational events, including basic workshops for homeowners and advanced courses for builders, installers and others in energy-related industries. As testament to the teams' expertise, CCSE was selected by the state to administer two new rebate programs for solar water heating and clean vehicles beginning in 2010.



## California Solar Initiative (CSI)



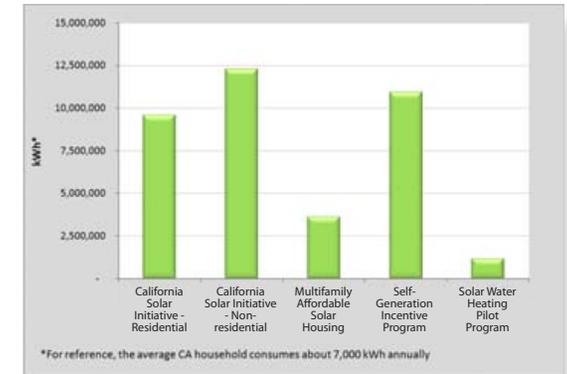
**NOW IN ITS FOURTH YEAR**, the nation's most ambitious renewable energy effort, the California Solar Initiative (CSI), is gaining momentum toward its goal of 3,000 megawatts of solar statewide by 2017. From 2007 to 2009, CSI processed applications for approximately 25 percent of the goal, including both installed projects and those in the pipeline. The rate of installations far exceeds initial program projections.

CCSE administers CSI in San Diego with rebate programs for homeowners, businesses and multifamily affordable housing. Despite the challenging economic situation in 2009, CCSE's residential and nonresidential CSI programs moved into step 6 of the 10-step rebate program, two years ahead of projections.

**THE CSI RESIDENTIAL PROGRAM** offers homeowners the information and technical assistance needed to understand how to integrate photovoltaic (PV) systems that can reduce or virtually eliminate their household electric bills.

October 2009 was the highest month on record in San Diego for new CSI residential solar applications, with 538 applications representing 280 kilowatts – greater than the total of all applications for 2007.

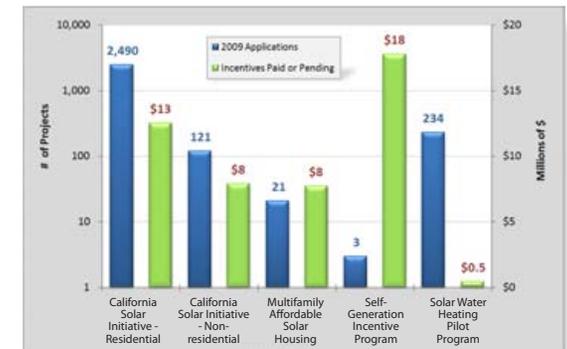
## Energy Production Associated with CCSE's Incentive Programs



"It is noteworthy that San Diego is home to the only California solar rebate program administered by a nonprofit organization, the California Center for Sustainable Energy, in concert with the local utility... this unique collaborative program structure has contributed to the city's impressive expansion of solar power over the past ten years."

- ENVIRONMENT CALIFORNIA RESEARCH & POLICY CENTER, CALIFORNIA'S SOLAR CITIES, SUMMER 2009

## Number of Projects and Incentives Paid



### ENERGY CONNECTION

**LEFT:** CCSE'S BEN AIRTH, CSI RESIDENTIAL PROGRAM MANAGER, CHECKS UP ON TODD CANO'S PV SYSTEM DURING CCSE'S 10TH ANNUAL SOLAR HOMES TOUR. CANO, A CSI REBATE RECIPIENT IN SAN MARCOS, CALIF., IS HAPPY WITH HIS SYSTEM AND REDUCED ENERGY BILL.



Find out what connected California businesses and universities like Costco and Point Loma Nazarene University already know – how going solar helps the bottom line. Visit [www.energycenter.org/gosolar](http://www.energycenter.org/gosolar)



**THE CSI – NONRESIDENTIAL PROGRAM** provides rebates for solar PV systems for a wide range of customers in agriculture, business, industry, government, education and nonprofit organizations. Typically much larger and more capital intensive than household systems, nonresidential solar installations require greater time to develop and complete.

During 2009, the CCSE nonresidential program team set a record of more than 17 megawatts of reserved and installed solar capacity. Three local universities – UC San Diego, Point Loma Nazarene University and University of San Diego – all completed or applied for the maximum of one megawatt of solar PV that CSI will incentivize at one site. In addition, San Diego State University, the Port of San Diego, the Valley Center Water District, Costco, Inc. and many others added to the total.

*“The CSI financial assistance proved critical to the project moving forward and our agency and community enjoying the current and long-term benefits of the Lake Turner Photovoltaic Solar Project.”*

- Gary Arant, Valley Center Water District

*“CCSE’s technical expertise, combined with their industry knowledge, has helped to advance the local solar industry. We look forward to building the solar industry together, one building at a time.”*

- Mehran Hamidi, director of business development, Vaillant Solar Systems

**ABOVE:** CCSE’S CSI NONRESIDENTIAL PROGRAM MANAGER KATRINA PEREZ SPEAKS ABOUT SAVINGS ON THE SOLAR ROOF OF COSTCO MISSION VALLEY WITH BOB NAUDIN, COSTCO WAREHOUSE MANAGER.

## ENERGY CONNECTION



**BOB NAUDIN, WAREHOUSE MANAGER,  
COSTCO MISSION VALLEY**

“Costco is able to do these projects not only due to our own efforts but also because of the significant support we receive from all levels and types of government agencies that not only provide financial incentives for these projects but assist with the permit process through design review. We appreciate that community support for these projects is always critical to these projects being successful.”



## Sunlight Shines on the Padre Dam

**THE PADRE DAM MUNICIPAL WATER DISTRICT** dedicated the opening of an 862-kilowatt photovoltaic system at Santee Lakes Recreational Preserve that also provides income from renting 300 shaded spaces for RV parking in February. CCSE's Energy Advisory Services provided the water district a detailed feasibility study that defined the target-system design criteria and project savings potential.

The four-acre site, with 14,000 solar panels, produces more than one million kilowatt hours of energy annually, equivalent to about 50 percent of the park and campground's power needs. It was deployed by Borrego Solar Systems, Inc. and funded by a long-term power purchase agreement (PPA) with SunEdison, who will maintain the system. Water district officials used the information EAS engineers provided as leverage during their solar project development and bid phase.

The project cost \$7.5 million, and SunEdison received a \$1,707,685 rebate through CCSE from the California Solar Initiative. Over the next 20 years of production, the zero-emissions system is expected to offset more than 13,000 tons of carbon dioxide.

### Building Model Urban Solar Projects

**THE CITY OF SAN DIEGO AND CCSE ARE PARTNERING** on two projects that will serve as models for urban solar energy use with funding from the Department of Energy's Solar America Cities program.

One project will outfit a local community center to be an energy self-sufficient emergency response facility, and the other will help to increase solar energy use in multifamily affordable-housing developments. Final funding amounts for the projects will be about \$1 million, including some matching funds to be authorized by the California Public Utilities Commission.

For the second project, CCSE experts will work with the city to conduct an energy analysis of four existing multifamily affordable-housing sites. The building owners will receive the analysis along with assistance in obtaining state and federal solar incentive programs.

"Our vision is to conserve and protect our natural resources. By hosting a solar energy system in the preserve, Padre Dam is taking another step to protect and improve the local environment."

- ALLEN CARLISLE, DIRECTOR OF PARKS AND RECREATION, PADRE DAM MUNICIPAL WATER DISTRICT



**THE SOLAR WATER HEATING PILOT PROGRAM** was the state's model program for promoting solar water heating (SWH) with residential and commercial rebates. Initiated in 2007 in the SDG&E service territory, the pilot program was set to end in December 2008, but was extended through 2009. In total, the program incentivized through 2009 more than 250 SWH installations totaling \$346,532, with some 150 applications pending for additional installations.

**BELOW:** CCSE'S ENERGY ENGINEER SKIP FRALICK AND SOLAR WATER HEATING PILOT PROGRAM MANAGER KATRINA PHRUKSUKARN TALK WITH GLEN BRANDENBURG ATOP THE MISSION BAY AQUATIC CENTER IN SAN DIEGO.

The CCSE pilot program proved the viability of incentives supporting the adoption of solar water heating and helped convince the California Public Utilities Commission (CPUC) to establish a new statewide CSI-Thermal Program that will begin May 2010. The \$350 million program's goal is to facilitate an additional 200,000 solar thermal systems in California by 2018. CCSE will administer the program in the San Diego region and provide key leadership to the CPUC and other program administrators for program development and roll-outs.

## ENERGY CONNECTION



**GLEN BRANDENBURG, DIRECTOR, MISSION BAY AQUATIC CENTER, AND SDSU ASSOCIATED STUDENTS SUSTAINABILITY DIRECTOR**

"The narrow picture for energy efficiency is it saves you money. The bigger picture of sustainability is about humans being able to survive on the planet. Many people talk about saving the world. I'm not a person who looks for awards, I do this for the underlying goals and purposes."





## Students Make Splash in Solar

The Associated Students of San Diego State University extended their commitment to a more sustainable campus by installing a 124-kilowatt solar PV system to power the Aztec Aquaplex swim center. CCSE Director of Programs Andrew McAllister awarded the students a \$286,116 rebate check from the California Solar Initiative in ceremonies held in December 2009.

“This project is an excellent example of bringing higher education, local business, nonprofits and government agencies around the cause of clean, renewable energy,” McAllister said. “Fifteen years ago, most PV electric systems were tiny, one-module battery charging systems that provided light to remote villages in developing countries. What these SDSU students have accomplished is no less transformative.”



The SDSU system consists of three separate ground-mounted arrays, each with 280 photovoltaic panels. It was designed and installed by Sullivan Solar Power of San Diego, who also installed a 40-kilowatt photovoltaic system at SDSU and UCSD’s Mission Bay Aquatic Center in 2008 that received a \$129,000 CSI rebate.

The solar system will save the university more than \$35,000 a year in utility costs, according to Grant Mack, Associated Students Green Commissioner.

### MULTIFAMILY AFFORDABLE SOLAR HOUSING

(MASH) helps ensure that solar energy serves all of San Diego County. Launched in February 2009 the statewide program provides qualified low-income multifamily housing owners with up-front rebates that cover 30–60 percent of total costs.

CCSE held a series of workshops to raise awareness about the new program and to encourage retrofit of existing properties. In mid-July, the day-long “Greening San Diego’s Affordable Housing” conference, organized by CCSE, was attended by more than 120 area stakeholders who heard from 15 industry leaders including energy consultants and financial experts.

MASH in San Diego exceeded its first-year program expectations with funding reserved for five projects under MASH Track 1 rebates. If all of the pending projects are implemented, CCSE will have exhausted 100 percent of the Track 1 rebates that were intended to last the duration of the program. Applications were also taken for Track 2 rebates that provide larger incentive payments if projects include additional tenant benefits. Current applicants in San Diego include the MAAC Project, Community Housing Works and Interfaith Community Services.

**CLOCKWISE FROM LEFT:** MULTIFAMILY AFFORDABLE SOLAR HOUSING IN CHULA VISTA, CALIF.; SDSU’S AZTEC AQUAPLEX PV SYSTEM; ANDREW MCALLISTER AND CHRISTINE KEHOE AWARD A CHECK FROM THE CALIFORNIA SOLAR INITIATIVE TO THE ASSOCIATED STUDENTS OF SAN DIEGO STATE UNIVERSITY’S AQUAPLEX PHOTOVOLTAIC INSTALLATION.

### THE SELF-GENERATION INCENTIVE PROGRAM

(SGIP) supports distributed energy systems on the customer's side of the utility meter. This year, SGIP expanded to include advanced energy storage, making it the first energy program in the nation to incentivize this critical technology. CCSE was a key advocate for making this happen and looks forward to playing a central role in future energy storage projects.

During 2009, CCSE announced the largest project in the history of SGIP – a renewable energy project with a reservation of \$11 million for the University of California, San Diego (UCSD). Their project will pair a 2.8-MW biogas fuel cell with 2.8 MW of advanced energy storage, forming a system that will reduce greenhouse gas emissions by an estimated 8,200 tons per year. The system is being developed by BioFuels Energy, LLC of Encinitas, Calif., and is scheduled for completion in 2011.

**RIGHT:** SGIP PROGRAM MANAGER RYAN AMADOR (CENTER), DISCUSSES ROI ON THE SHERATON'S FUEL CELLS WITH HOTEL MANAGEMENT ANN HANNOSH, WARREN NOCON, KERI ROBINSON, DAVID PROST AND DAN SCHMITZER.



### ENERGY CONNECTION



**ANN HANNOSH**  
DIRECTOR OF SIX SIGMA, SHERATON  
SAN DIEGO HOTEL AND MARINA

“The hotel was able to do all of the initial fuel cell installation due to the help of the rebate from the Self-Generation Program. Our ENERGY STAR portfolio manager rating has sky-rocketed since we generate the power on-site and therefore can verify it comes from a clean source.”



Learn more about driving alternative  
fuel vehicles like the all-electric GEM car  
at [www.energycenter.org/cvrp](http://www.energycenter.org/cvrp)



**ALTERNATIVE FUEL VEHICLE PROGRAM**

Vehicle Rebates: 948  
 Awards Total: \$2,598,836

To promote the alternative fuels industry and the adoption of clean vehicles, CCSE administered the Alternative Fuel Vehicle Incentive Program for the California Air Resources Board (ARB) that distributed incentives to residents and businesses statewide that purchased eligible vehicles between February 2008 and April 2009 for a total of nearly \$2.6 million.

Because of the center’s successful operation of the program and in-depth evaluations and assessments, the ARB selected CCSE in fall 2009 to manage the follow-on Clean Vehicles Rebate Project. The new zero-emission and plug-in hybrid vehicle program has \$4.1 million for rebates of up to \$5,000 per vehicle through June 2012 or until incentives run out.

CCSE will take the lead on development of the rebate promotion, dealer training and disbursement of rebates to consumers beginning in March 2010.

*“Every alternative fuel vehicle that replaces a gas vehicle on the roadway helps clear the air for all of us.”*  
 - Irene Stillings, CCSE executive director

**PHOTOS CLOCKWISE FROM LEFT:** AN ALL-ELECTRIC ODOMETER; CCSE’S FUELING ALTERNATIVES PROGRAM MANAGER MARY VENABLES RIDES WITH LA MESA, CALIF.; RESIDENT ALLAN MARCUS IN HIS GEM 2 POWERED BY ELECTRICITY IN MISSION BAY, SAN DIEGO, CALIF.; NOT YOUR AVERAGE FUELING TANK

**ENERGY CONNECTION**



**ALLAN MARCUS**  
 FUELING ALTERNATIVES REBATE RECIPIENT  
 AND OWNER OF A GEM 2

“I am deeply committed to the goals of your organization and the opportunity to move beyond a fossil-fuel economic/energy base – all the tools are at our fingertips. The only thing that is required is education, infrastructure and opportunity.”



# Energy Engineering



*Supporting energy efficiency, renewable energy, carbon reduction, green building and program development*

CCSE has provided energy advice and engineering services for many years, but 2009 was the first full year for the Energy Advisory Service (EAS) and also marked growth in our Energy Efficiency Engineering (EEE) group.

These services supply objective, independent assessment and analysis of energy projects for commercial clients, municipal agencies and others by presenting the technical and operational merits of various opportunities. The groups also assist clients with applying for incentives, utility rebates and grants. This past year, they provided engineering reviews that helped municipalities and other regional public agencies secure more than \$196 million in federal Clean Renewable Energy Bonds for local projects.

**CCSE'S ENERGY EFFICIENCY ENGINEERING TEAM** performs audits, energy simulations and measurement and verification of energy savings, often through SDG&E energy-efficiency incentive programs. A key objective is to champion innovative energy-efficiency measures, particularly as a complement to planned renewable energy self-generation projects. The team also provides technical assistance through the San Diego Energy Resource Center.



**THE ENERGY ADVISORY SERVICE (EAS)** provides comprehensive energy consulting for a wide variety of corporate and public sector clients. In 2009, EAS completed solar-related analysis projects for more than 15 clients, including solar feasibility assessments for two local school districts – San Dieguito Union and Coronado Unified. In November, San Dieguito Union decided to move ahead with plans to install PV systems at two high schools for a total of two megawatts of power. EAS engineers also partnered with the Port of San Diego’s Environmental Department to assess the port’s solar potential. The port’s first project, a 30-kilowatt solar system, powers their administrative building on Pacific Highway. The \$210,000 project received a \$55,609 California Solar Initiative rebate from CCSE. In total, EAS performed solar feasibility analysis on eight port facilities.

EAS also consulted with the cities of El Cajon and Lake Forest to develop their Energy Efficiency and Conservation Strategy programs and completed and filed their Energy Efficiency and Conservation Block Grants applications, securing approximately \$1.6 million in Recovery Act funds. In addition, EAS consulted on a LEED-silver building project for the state-of-the-art Village at Lindo Paseo and worked with the Centre City Development Corporation to create a redevelopment incentive structure that will entice builders and owners to become greener.

In the area of program design, EAS incentive program specialists helped establish compliant solar incentive programs for Turlock Irrigation District in Stanislaus County and Roseville Electric in Placer County.

**FROM LEFT:** CCSE’S ENERGY ADVISORY SERVICE PROGRAM MANAGER JON FORTUNE WITH BRAD GESSNER; AERIAL VIEW OF THE SAN DIEGO CONVENTION CENTER

## ENERGY CONNECTION



**BRAD GESSNER, GENERAL MANAGER  
SAN DIEGO CONVENTION CENTER**

“I truly believe that your team’s dedication has moved the San Diego Convention Center Corporation closer to our sustainable energy goals and for that I am grateful. The Center for Sustainable Energy sets a fine example for us all and raises the bar for the whole industry. It is my opinion you make a statement both by ‘doing things right and by doing the right things.’ Please keep up the fine work you are doing.”



**The San Diego Zoo is saving green** after an energy efficiency retrofit by CCSE's expert energy engineers. Learn how your business can benefit by an energy efficiency retrofit at [www.energycenter.org/retrofit](http://www.energycenter.org/retrofit)

### THE TAX-EXEMPT CUSTOMER (TEC) PROGRAM

addresses the barriers tax-exempt organizations face when considering energy upgrades and renewable energy installations. Administered by CCSE, TEC provides advice and incentives for energy-efficiency measures proposed by local governments, military and K-12 schools under the SDG&E Energy Savings Bid Program. Originally slated to end in 2008 after two years of operation, TEC was extended through 2009 by the California Public Utilities Commission.

During 2009, CCSE's Energy Efficiency Engineering team successfully submitted applications for eleven TEC projects for a total of approximately \$17 million in project costs, with clients receiving incentives of \$1.7 million and achieving energy savings of more than 14 million kWh and 89,000 therms. Among the clients served were the Cajon Valley Union School District, San Diego Zoo, San Diego State University, San Diego Airport, Del Mar fairgrounds, San Diego County and the cities of San Diego and Carlsbad.

**BELOW:** CCSE'S ENERGY ENGINEER AMANDEEP SINGH (CENTER) LISTENS AS THE SAN DIEGO ZOO'S VENTURE BUSINESS MANAGER JON PRANGE (LEFT) AND DAVID PAGE (RIGHT) SPEAK ABOUT THE SAVINGS REALIZED DUE TO THE ZOO'S LIGHTING RETROFIT MADE POSSIBLE BY CCSE'S TEC PROGRAM.

### ENERGY CONNECTION



DAVID PAGE, DIRECTOR OF FINANCE,  
ZOOLOGICAL SOCIETY OF SAN DIEGO

"We were excited with the opportunity to reduce our energy consumption. The implementation process went smoothly, and early results indicate significant savings. It is a very effective program."



# Education



***Promoting sustainability and energy efficiency through exhibits, workshops, library resources, technical assistance and online materials***

CCSE offers a wide range of educational services that empower San Diegans with the knowledge to make wise decisions about energy use and sustainable living through our website, workshops, community events and the San Diego Energy Resource Center. Our education staff is supported by experts in our other technical and engineering areas as well as by industry experts from the community.

The main focus of CCSE's educational efforts is through the Energy Resource Center (ERC), a joint program of CCSE and San Diego Gas & Electric. During 2009, the ERC served a wide range of customers from first-time homeowners looking for basic information to experienced contractors and engineers seeking advanced training. Special workshops were developed on new topics, such as home energy auditing and green job opportunities, and many new products were added to the ERC resource and tool lending library. ERC services and resources are available to the public at no charge.

The Education team is also spearheading San Diego's Green Career Network, an online resource for employers and job seekers, and working with community partners on many activities to expand the green jobs marketplace.





## Green Learning Adventure in the Classroom

The Green Learning Adventure launched this past year, a community education initiative for elementary and middle school students about global climate change and sustainable living. According to CCSE Climate Change Program Manager Andrea Cook, the classroom sessions will provide youth with information that they can act on immediately to reduce their carbon footprint and save energy.

So far, the San Diego and Carlsbad city school districts have signed on for the Green Learning Adventure. The first program was held at Bethune Elementary in Bay Terraces in November. Green Learning Adventure is kicking off with generous grants from the Sempra Energy Foundation, Walmart Foundation and Sempra Utilities.

The Green Learning Adventure provides up to 15 different hands-on, interactive lesson modules covering topics ranging from exposing absurd packaging to exploring the transportation requirements for a home-cooked meal, while reinforcing literacy, math and science skills. The teaching team also leaves behind information on what the students can do in their lives and at home to conserve energy and water, reduce waste and implement other sustainable practices.

### Energy Resource Center (ERC)

Workshops: 216 held on site  
Workshop attendees: 8,902  
Books and tools: 2,429 lent items  
Technical assistance: 175 inquiries

**CCSE VISITORS ARE WELCOMED** in the ERC Technology Center, which features interactive displays of the latest energy-related technologies, devices and products. New exhibits were added last year that compare home-lighting technologies, examine the energy efficiency of window glass and show how solar photovoltaic systems reduce home energy use. The ERC Library underwent extensive organization with the addition of 200 new books and DVDs and the development of an online catalog that allows users to search for items and place them on reserve for check out. During the year, more than 17,000 San Diegans visited the ERC.

## Green Jobs for Women Round Table

“Energy efficiency is hot and sizzling” was the quote of the day as nearly 100 women gathered at CCSE’s Energy Resource Center for a green jobs for women roundtable in November. The afternoon event was funded by a grant from the Department of Labor, Women’s Bureau Region 9.

In industries that were once typically dominated by male engineers, architects, facility managers, installers and builders, there are now opportunities for women as these job fields go green, according to Irene Stillings, CCSE executive director.

The roundtable panel brought together women who are experts in areas of green job training, education, labor and workforce development to share their technical and educational experiences. Many attendees were looking to gain information about how to get a job in the burgeoning green industries, who they should network with and how to establish a successful green career pathway.

Panelist Sandra Moreland, an industry training specialist at the San Diego Workforce Partnership, made it clear that there are many new green job opportunities for women and that they range from sales, marketing and consulting to auditing, project management and more. The panelists spoke about training and certification programs available through a number of education and training institutions.





Achieve net-zero energy on your next building project. Find out how at the Energy Resource Center's free workshops, with topics ranging from energy efficiency to commercial tax incentives for going green. Visit [www.erc.energycenter.org](http://www.erc.energycenter.org)

## Green Workforce Training

CCSE is a partner in two major workforce training programs that received funding in 2009 as part of efforts to kick-start a wave of new green jobs: The California Solar Training Collaborative and the San Diego Green Building Training Collaborative.

The Solar Training Collaborative received \$3.5 million of American Recovery and Reinvestment Act (ARRA) funding awarded by the U.S. Department of Energy to increase the quality and availability of instruction relating to the installation of photovoltaic and solar thermal systems. It is a joint effort of the California Energy Commission, California Community Colleges Chancellor's Office, Labor-Management Cooperation Committee, CCSE and others. CCSE will be responsible for much of the educational material development,

helping to organize a community advisory committee and participating in the National Consortium for Solar Installer Instructor Training.

The Green Building Training Collaborative is an initiative of the Grossmont-Cuyamaca Community College District and CCSE that was funded by a \$1 million award as part of the California Clean Energy Workforce Training Program. The San Diego program targets unemployed or underemployed workers with previous construction experience who want to transition into jobs in the PV and solar water heating industry. CCSE's part is to provide assistance with curriculum development and expand the trainer base in San Diego.



### ENERGY CONNECTION



**BETH BRUMMITT, PRESIDENT,  
BRUMMITT ENERGY ASSOCIATES**

"We have attended many seminars at the Energy Resource Center that have helped us gain more skills in helping our clients. For example, the integrated daylighting and lighting system at the offices of ARCHITECTS hanna gabriel wells have saved them almost 80% of their lighting energy, which is extremely good!



**LEFT:** SANDY HOUCK, RANDY HANNA, CCSE'S ENERGY RESOURCE CENTER PROGRAM MANAGER ASHLEY WATKINS AND BETH BRUMMITT DISCUSS THE ARCHITECTS HANNA GABRIEL WELLS' NET-ZERO OFFICE BUILDING IN OCEAN BEACH, CALIF., WHICH BRUMMITT ENERGY ASSOCIATES HELPED CREATE **TOP:** THE ARCHITECTS' OFFICES ARE IN A REDESIGNED AND REMODELED 1955 AUTO REPAIR SHOP



# Special Events & Outreach

*Building relationships and raising community awareness through public events*

CCSE reaches out to raise public awareness about clean energy and sustainable living by conducting several annual events and participating in numerous activities in the community. Our objective is to educate and share resources that will help consumers and businesses learn that going green is good for the environment and anyone's bottom line.

Most of our events are free or at a very low cost to participants and offer exhibit space and sponsorship opportunities for local green businesses, nonprofit organizations and others. None of these outreach activities would be possible without the dedication of our staff and especially the work of our more than 60 volunteers who perform administrative services, help at special events and provide other efforts that facilitate CCSE's programs.

"CCSE is an inspirational model for this type of outreach in California and the nation, and it is because of the individual effort of everyone there."

- TYLER MICHAEL, DIRECTOR/NEW SOLAR HOMES, HELIOPower INC.

## Brightening the Future of Solar

CCSE's fifth annual **Solar Energy Week**, Sept. 27 – Oct. 3, celebrated San Diego as California's No. 1 solar city and served as the kick-off event for California's Solar Energy Month. Activities at various locations around the county focused on bringing together residents and business owners with solar experts, suppliers and installers to explore the benefits of using sunlight for electricity and water heating.

**Family Solar Day** was fun in the sun at Liberty Station on Point Loma as hundreds of visitors checked out exhibits of solar-related products and marveled at

foods prepared by the Solar Cooking Club, while the kids test drove solar-powered mini-cars.

At the **San Diego Solar Conference** held at the Marriott Mission Valley, nearly 500 attendees heard energy experts, government officials and others speaking about the latest policies, technologies and markets for solar energy and what it all means for San Diego's solar industry. Keynote speakers were Mayor Jerry Sanders, County Supervisor Dianne Jacob and CCSE Director of Programs Andrew McAllister.

Two biodiesel-fueled buses carried "solar tourists" on the **Commercial Solar Tour**, which offered a unique look inside Siliken Renewable Energies' solar panel production facility and visits to large-scale PV installations at Padre Dam Municipal Water District (Santee Lakes) and Point Loma Nazarene University. More than 50 residents throughout the county opened their homes for the **Solar Homes Tour** that gave visitors an opportunity to talk with homeowners about their experiences in going solar.

### ENERGY CONNECTION



**GAIL WELCH, MANAGER OF SUSTAINABILITY, QUALCOMM, INC.**

"We are proud to sponsor Family Solar Day because we believe it is important to reach out to families, and especially children, to educate them about solar energy."

**CLOCKWISE FROM LEFT:** FUN AT FAMILY SOLAR DAY; DIANE JACOB AT THE SOLAR CONFERENCE; DRIVING SOLAR-POWERED CARS AT FAMILY SOLAR DAY; SAN DIEGO'S ENERGY FUTURE IS BRIGHT AT THE SOLAR CONFERENCE; A STOP AT POINT LOMA NAZARENE UNIVERSITY ON THE COMMERCIAL SOLAR TOUR; MAKING ENERGY CONNECTIONS AT FAMILY SOLAR DAY

View photo highlights and watch a four-minute video. Visit [www.solarenergyweek.org](http://www.solarenergyweek.org)





Josh Tickell's algae-powered Prius made his trip to the FUEL film premiere in Kensington possible in October. Learn more about driving alternative fuel vehicles at [www.energycenter.org/cvrp](http://www.energycenter.org/cvrp)



Read about last year's winners and check out video clips. Visit [www.energycenter.org/sandee winners](http://www.energycenter.org/sandee winners)

## Honoring San Diego's Energy Heroes

**AT THE 5TH ANNUAL** San Diego Excellence in Energy (SANDEE) Awards in March, CCSE honored community leaders and businesses who implemented noteworthy energy savings during 2008. More than 250 people attended the SANDEEs ceremony at the Omni Hotel, where awards were accepted by County Supervisor Dianne Jacob, Encinitas Mayor Maggie Houlihan, UCSD Vice Chancellor Steven Relyea and many others. All told, the measures undertaken by this year's SANDEE recipients totaled 9,619,391 kWh of energy saved and 23,114 metric tons of greenhouse gas emissions reduced.

*"President Obama has called on Americans to control our own energy destiny, and some of the best ways to accomplish that are represented by this year's SANDEE Award winners."*

- Irene Stillings, CCSE executive director

## Driving Green at Street Smart

**SAN DIEGANS CHECKED OUT THE LATEST** innovations in alternative fuel vehicles and talked with industry experts about clean transportation at the third annual Street Smart San Diego in June. Some 600 attendees gathered to glimpse under the hood of hybrid and electric cars, test drive electric scooters and hear from biofuels expert Josh Tickell, writer and director of the film "Fuel."

**"We want to help San Diegans get a better understanding of what energy-efficient and renewable technologies are available to reduce their energy use."**

- Lauri Walker, special events program manager

## Promoting a Greener Way of Life

**FOR TWO DAYS IN AUGUST**, CCSE hosted hundreds of San Diegans in celebrating a healthier, greener lifestyle at the second annual Sustainability Fair. One day focused on business and commercial consumers, and CCSE offered a second day for residents. Both days featured free, public workshops on topics such as building sustainable communities, energy-efficiency measures and water conservation. More than 85 exhibitors participated in vendor expos, showing living green roofs, energy-efficient and fireproof home-building materials and many other sustainable concepts for home and business.

**CLOCKWISE FROM LEFT:** CARPOOLING OPTIONS ON DISPLAY AT STREET SMART SAN DIEGO; REBECCA HARRELL AND JOSH TICKELL AT STREET SMART; ENERGY HEROES FROM THE COUNTY OF SAN DIEGO HOLD THEIR AWARDS FOR OUTSTANDING ORGANIZATIONAL ACHIEVEMENT AT THE SANDEE AWARDS; A SOLAR-POWERED JEEP AT STREET SMART



View photo highlights and watch a three-minute video at [www.sustainablecalifornia.org](http://www.sustainablecalifornia.org)

**BUILDING GREEN IN SAN DIEGO**

San Diegans learned about the latest eco-friendly technologies and products for home building and remodeling at CCSE's Green Expo in April. The event grew out of CCSE's Rebuild Central program that offers support for the 2007 wildfire survivors, many of whom are still in the process of rebuilding their homes.

**ADVOCATING SOLAR WATER HEATING**

Rainy weather didn't dampen the spirits of the vendors and interested San Diegans who attended the Solar Water Heating Expo held in June. Assembly Member Lori Saldaña addressed workshop attendees, stressing the importance of solar water heating and net-zero energy homes.

**RECOGNIZING STUDENTS EXPLORING SUSTAINABILITY**

San Diego County students in grades 4-6 shared their ideas about sustainability at the second annual Young Scientist Innovation Fair hosted by CCSE in May. Entries included a water-conserving, two-flush toilet and a solar-powered bag that charges small electronics.

*"Building green, energy-efficient and fire-resistant is very important to me, and I'm happy to open my home up, share my journey and share why."*

- Ken Baker, Green Expo panelist and 2007 wildfire survivor

**LEFT TO RIGHT:** GREEN ROOF DISPLAY DURING CCSE'S GREEN EXPO IN APRIL; SOLAR VENDORS AT THE GREEN EXPO; ENERGY ENGINEER MIKE BIGELOW EXPLAINS ENERGY EFFICIENCY DISPLAY IN THE ENERGY RESOURCE CENTER DURING THE SOLAR WATER HEATING EXPO IN JUNE; ASSEMBLY MEMBER LORI SALDANA ADDRESSES ATTENDEES AT A FREE PUBLIC WORKSHOP DURING THE SOLAR WATER HEATING EXPO IN JUNE; ATTENDEES CHECK OUT EXHIBITS AT THE GREEN EXPO

**We Would Like to Thank Our 2009 Major Partners and Sponsors**

- San Diego Gas & Electric
- Baker Electric Solar
- California Home Builders
- Marrokal Design and Remodeling
- Natural Energy USA
- Helio Power
- Pro-Finish Construction Corp.
- Cox Conserves
- Waste Management
- Soundoff Computing
- Walmart
- CompuCom
- Union Bank of California
- Enterprise Rideshare

- Sanyo
- Mossy Toyota
- San Diego Regional Clean Fuels Coalition
- Qualcomm
- International Brotherhood of Electrical Workers
- Green House Builders
- REC Solar
- Siliken Renewable Energy
- Solar Plus
- Sullivan Solar Power
- Photon Solar Power
- Mitsubishi Electric
- Stone Brewery



# Public Affairs

*Engaging regional, state and national stakeholders in discussions and strategies for a clean energy future*

The Public Affairs team furthers CCSE's mission of building a sustainable energy future by participating in relevant legislative proposals, fostering key government and industry relationships, developing policy and planning initiatives, navigating regulatory proceedings and sponsoring community and stakeholder outreach activities. In addition, the team files comments on behalf of CCSE to the California Public Utilities Commission and the California Energy Commission, and provides support for the San Diego Association of Governments, local municipalities and other agencies.

This past year, Public Affairs expanded its role of liaising with public officials, agency administrators and legislators by increasing contacts with key policy makers in San Diego, Sacramento and Washington, DC.

A major innovation that emerged in 2009 were property assessed clean energy (PACE) programs as an option for financing renewable energy and energy efficiency measures. Public Affairs hosted local government officials at a PACE planning workshop and worked closely with local government staff members to develop their PACE programs. CCSE is participating in PACE program design at the regional and state level and will support efforts in several jurisdictions.

**LEFT:** CCSE ENGINEER MIKE BIGELOW SHOWS DEPT. OF EDUCATION ASST. SECRETARY GLENN CUMMINGS THE SANYO ENELOOP ELECTRIC BIKE ON A TOUR OF THE ENERGY RESOURCE CENTER

# SAN DIEGO SOLAR MAP

Solar Activity Around the City



Solar Map | Blog | Forum | Electric Rate Analyzer

Map Type: Hybrid

## About

## Tools

### Solar Installation Markers

- Residential PV
- Residential SWH
- Commercial PV
- Government/Non-Profit PV
- Commercial & Government/Non-Profit SWH
- Areas with Detailed Solar Estimates
- Installed PV by Zip Code
  - 0 - 83 kW
  - 84 - 236 kW
  - 237 - 460 kW
  - 461 - 789 kW
  - > 789 kW

### Get A Detailed Solar Estimate

Detailed rooftop estimates have been completed for three areas in San Diego. To retrieve these estimates:

- Select an area...
- Click on the rooftop

### Search the Map

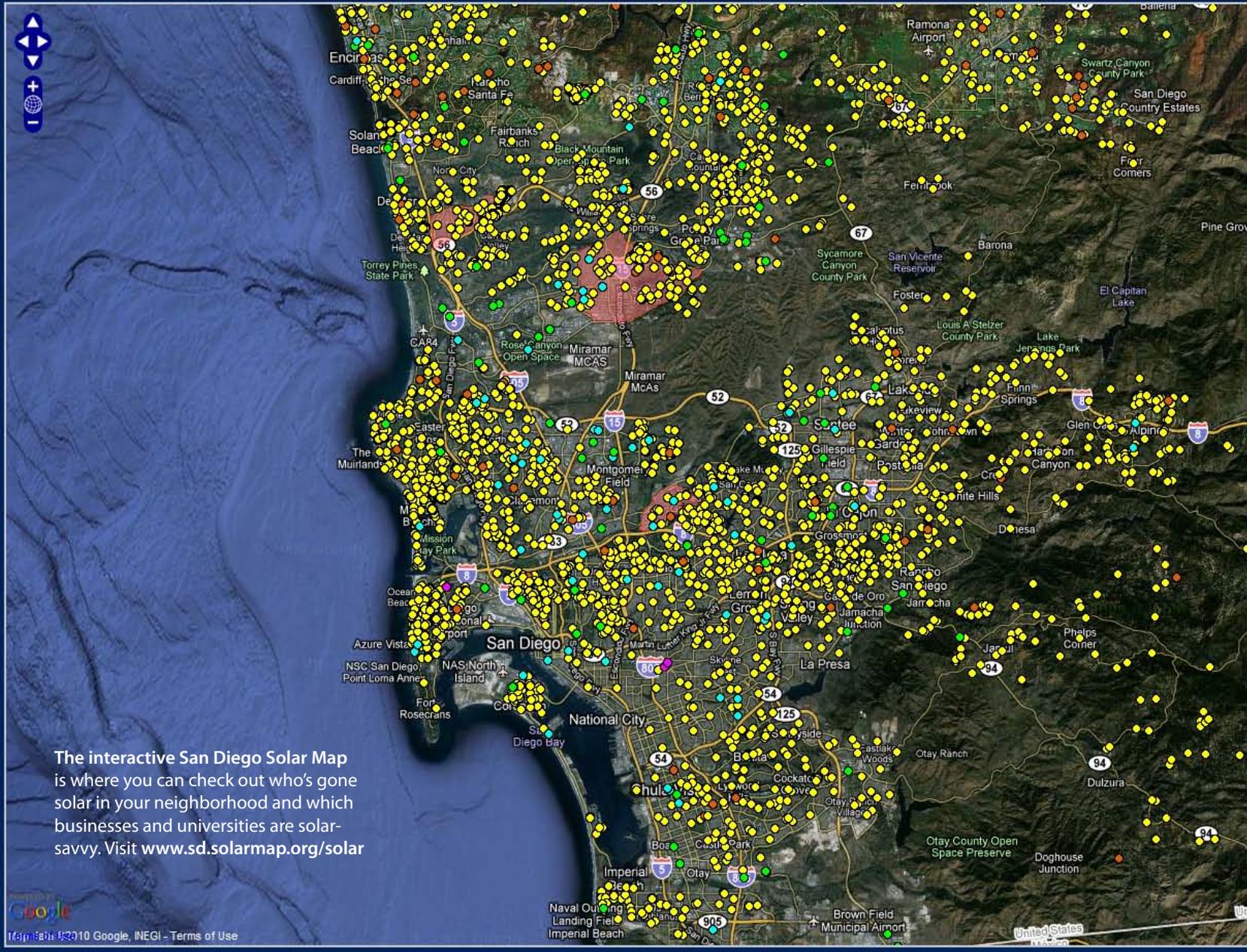
Type an address or point of interest in the box below to find it on the map

Don't see your installation on the map?

## News & Information

## Details



The interactive San Diego Solar Map is where you can check out who's gone solar in your neighborhood and which businesses and universities are solar-savvy. Visit [www.sd.solarmap.org/solar](http://www.sd.solarmap.org/solar)

## Leadership in Regional PACE Programs

**IT WAS STANDING ROOM ONLY** at a Local Government Workshop on home energy retrofit programs and government-sponsored financing options held at CCSE in July. More than 100 government officials, energy industry experts and others learned how municipalities can design comprehensive residential programs that will decrease energy consumption and help meet California's greenhouse gas (GHG) emissions reduction goals.

Discussions centered on developing local programs to implement Assembly Bill 811, which allows land-secured loans for homeowners and business owners who install energy-efficient technologies and clean-energy generation systems to be paid back through assessments on individual property tax bills. Using these Property Assessed Clean Energy (PACE) loans, property owners can avoid up-front installation costs, and local governments need not invest precious general funds.

"We want to ensure that the actions taken now lead to policies and practices that turn energy efficiency and renewable energy technologies into standard practices," said Andrew McAllister, CCSE director of programs.

The workshop was a joint effort with presentations by CCSE, the U.S. Environmental Protection Agency, Build It Green, the California Air Resources Board, the California Energy Commission, San Diego Gas & Electric, Heschong Mahone Group, California Building Performance Contractors Association, Bevilacqua-Knight and Sustainable Spaces.

**LEFT:** THE PORT OF SAN DIEGO IS AWARDED A CALIFORNIA SOLAR INITIATIVE REBATE CHECK FOR THEIR SOLAR PHOTOVOLTAIC INSTALLATION.

**RIGHT:** SAN DIEGO MAYOR JERRY SANDERS DECLARES SAN DIEGO THE NO. 1 SOLAR CITY

## San Diego No. 1 California Solar City

**TV NEWS CREWS** and newspaper journalists gathered at San Diego's Environmental Services offices in Kearny Mesa on July 16 as Mayor Jerry Sanders announced a report ranking San Diego as the number one solar city in California.

Bernadette Del Chiaro of the nonprofit organization Environment California, authors of the report, said there are three major contributors to the city's solar success story: lots of sunshine, fast-track permitting for solar projects and the programs and efforts of CCSE. The city has approximately 2,300 solar rooftops, producing nearly 20 megawatts of clean energy.

Joining in the press conference were CCSE's Director of Programs Andrew McAllister, CH2M Hill Project Manager Kevin Murphy, CleanTECH San Diego President Lisa Bicker and Daniel Sullivan, owner of Sullivan Solar Power.

Also unveiled at the press conference, the interactive San Diego solar map enables users to view more than 6,000 rooftop solar PV and water heating systems. It is a cooperative project of the City of San Diego, CCSE and CH2M Hill with funding from the Department of Energy's Solar America Cities program and the California Solar Initiative.



## ENERGY CONNECTION



**BERNADETTE DEL CHIARO, CLEAN ENERGY ADVOCATE, ENVIRONMENT CALIFORNIA**

"The California Center for Sustainable Energy has done an amazing job and is a great model for the rest of the state of an independent, nonprofit organization administering rebate programs and education programs for consumers to invest in solar."



# Marketing & Communications

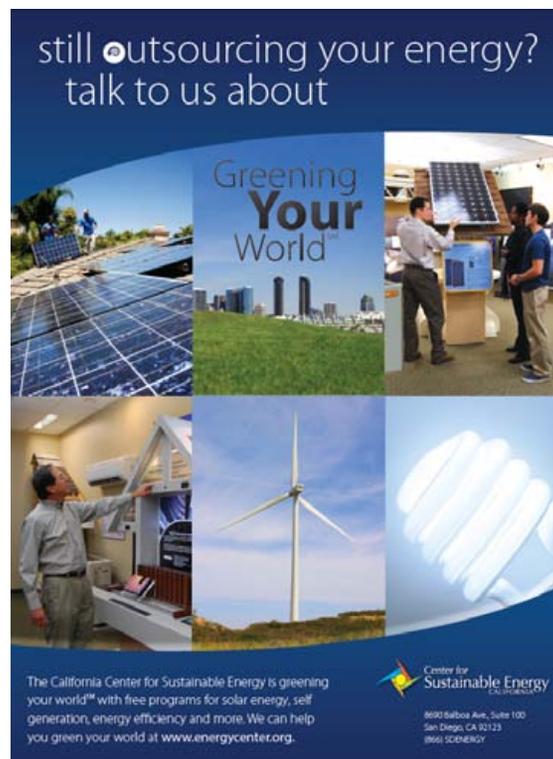
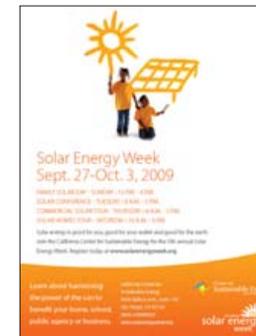
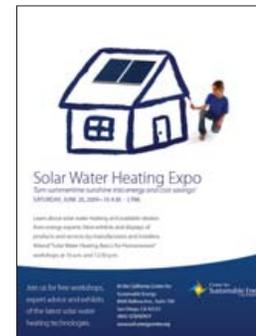
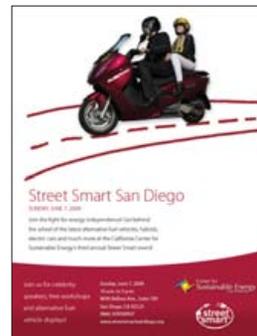
*Providing marketing, advertising and public relations to support CCSE's programs and services*

The Marketing & Communications team supplies a media-rich gateway through which CCSE interacts with its various constituents, targeted audiences and the general public. This includes developing print, radio, TV and Web materials, as well as digital direct mail advertising and public relations, including press releases, media alerts, press conferences and working with the media onsite at events. The team also disseminates weekly e-mail blasts for workshops and two monthly newsletters, Energy Connection and California Solar Initiative Newsletter.

During 2009, Marketing & Communications continued to build awareness of CCSE events and activities by increasing web subscribers, generating extensive media coverage and working with other community partners. CCSE's database of subscribers grew nearly 13 percent to more than 12,800 individuals, and an extensive online tracking system was initiated that allows for analysis and reporting on workshop demographics and the success of advertising campaigns.

The team produced four videos this year, including "Go Solar Now" for the California Solar Initiative, and assisted in producing a statewide Go Solar, California! calendar. They also collaborated with other community partners to help drive environmental messages, including Stand for Less, CBS Radio and the American Lung Association.

**Online Subscribers:** 12,800  
**Annual Website Visits:** 267,000





## CCSE's 2009 Board of Directors

PICTURED, FROM LEFT:

**Robert Wilder, Member**  
CEO/Founder, Wildershires, LLC

**Lisa Shaffer, Member**  
Executive Director, Sustainability Solutions Institute,  
UC San Diego

**Susan Christopher, Member**  
Vice President and Senior Wealth Advisor, Union Bank

**Daniel Torpey, Member**  
Senior Director of Implementation, Qualcomm Real Estate and  
Facilities, Qualcomm Inc.

**Cecilia Aguillon, Member**  
Director of Business Development & Government Relations,  
Kyocera Solar, Inc.

**John Moot, Member**  
Attorney, Wertz, McDade, Wallace, Moot & Brower

**Fred Baranowski, Vice Chairman**  
Senior Vice President and Regional Manager,  
1st Pacific Bank

**Irene Stillings**  
Executive Director, California Center for Sustainable Energy

**Richard H. Hertzberg, Member**  
President, ENPEX Corporation

**Michael Akavan, Member**  
Principal, MA Engineers

**Karen Van Winkle, Member**  
Planning & Construction Project Manager,  
Sweetwater Union High School District

**Wayne Hart, Member**  
Senior Faculty, Center for Creative Leadership

**Robert Noble, Chairman**  
CEO, Envision Solar

**Alan Ball, Secretary/Treasurer**  
Partner, Sustainable Intelligence Group

**Nick Leibham, Member (not pictured)**  
Of Counsel, K&L Gates, L.L.P.

## CCSE's 2009 Executive Leadership



PICTURED, FROM LEFT: Irene M. Stillings, Executive Director; Andrew McAllister, Director of Programs; Siobhan Foley, Director of Education and Outreach; Abigail Reyes, Director of Human Resources; Jose de la Torre, Controller

## Fiscal Year in Review

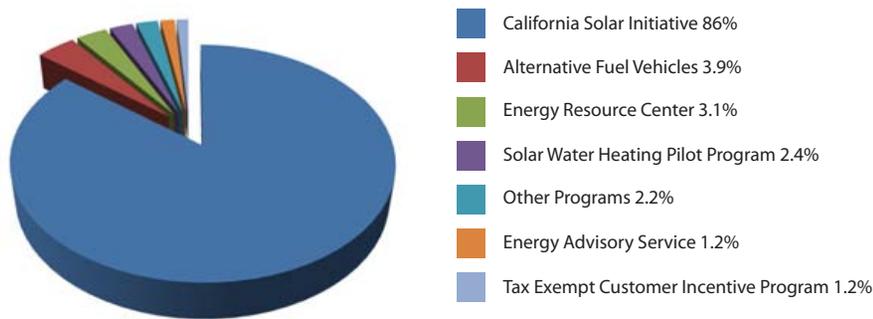
As a nonprofit, CCSE's goal is to invest most of its funds into the San Diego community. Overall, 91% of its total resources in 2009 were invested in the community, either directly (rebates and incentives) or as program services and education.

In order to support all the initiatives that take place at CCSE, the center efficiently spends its funds by investing 7% of its total expenses in general administration and only 2% in marketing and outreach.

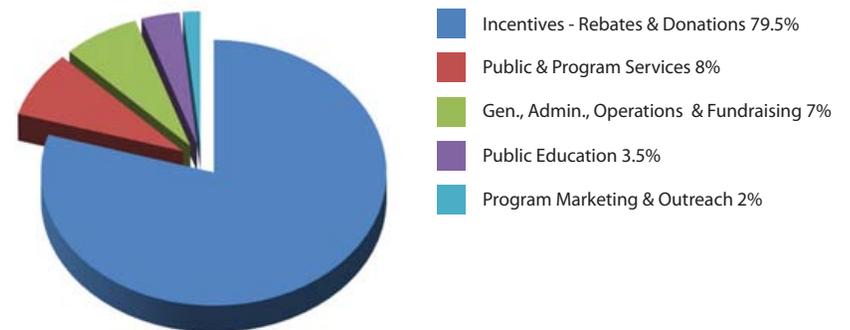


ABOVE: CCSE'S EXECUTIVE DIRECTOR IRENE STILLINGS SPEAKS AT THE CALIFORNIAFIRST STAKEHOLDER MEETING

Expenses by Major Programs  
January through December 2009



Expenses by Category  
January through December 2009





## Thank You

Our efforts are only as good as the people who believe in our mission and march with us in our mission toward a clean energy future. We thank our community partners and sponsors.

Learn how you can help us build a sustainable energy future by visiting at [www.energycenter.org/donate](http://www.energycenter.org/donate).

Tax ID#33-0936366

## Donate for Education and Outreach

The California Center for Sustainable Energy is a 501(c)(3) nonprofit. By supporting CCSE with your tax-deductible donation, you are creating a greener world today and for future generations.

As more and more people turn to CCSE for reliable, unbiased and independent information on an ever-increasing agenda of sustainable energy issues, we want to respond to these needs at every level from classroom educational programs to technical energy advisory solutions.

With 98 percent of the money we receive from state and government sources being restricted for specific programs and incentives, we rely on the generous support of donations and sponsorships to serve the community.

**ABOVE:** CCSE'S KATRINA PEREZ, LAURI WALKER, ABIGAIL REYES, KATRINA PHRUKSUKARN, CINDY SHEGOG, DOUG WHITE, ASHLEY WATKINS, DREW HENLEY AND BEN AIRTH SEND A MESSAGE OF THANKS TO OUR COMMUNITY PARTNERS AND SPONSORS.

**PHOTO CREDITS:**

ALYSON DORIA PHOTOGRAPHY (ENERGY CONNECTION PHOTOS)  
MKE PIQUE (AERIAL SAN DIEGO CONVENTION CENTER PHOTO)  
P2 PHOTOGRAPHY (SOLAR FAMILY AND AERIAL PLNU PHOTOS)

