Final Program

ASES National Solar Energy Conference San Diego
SOLAR 2008
Catch the Clean Energy Wave!

May 3 – 8, 2008 • Town and Country Resort & Convention Center • San Diego, California

SOLAR 2008 is presented by

AMERICAN SOLAR ENERGY SOCIETY

Featuring

- 37th ASES National Solar Conference
- 33rd National Passive Solar Conference
- 3rd Annual Renewable Energy Policy, Advocacy and Marketing Conference
- Solar Success! Training Event
- American Solar Energy Society Annual Meeting
- Society of Building Science Educators Annual Meeting

Welcome

On behalf of the American Solar Energy Society (ASES), the San Diego Renewable Energy Society (SDRES), the Northern California Solar Energy Association (NorCal Solar), the Redwood Empire Solar Living Association (RESLA), and the California Center for Sustainable Energy, welcome to **SOLAR 2008**!

This year's conference will build on the outstanding SOLAR successes of 2006 and 2007 where the dual role of renewable energy in climate and economic recovery, respectively, was clearly established. ASES Reports launched at these events — "Renewable Energy: A Key to Climate Recovery" and "Green Collar Jobs" — have been featured prominently in the public media. In 2008, we feel a new urgency about **bringing together technology, policy and community solutions** to address climate change, grow our economy and specifically look for solutions to reduce our carbon footprint.

With a focus on renewable energy solutions in our communities and leadership to bring about change in our national energy policy we offer several new experiences at SOLAR 2008.

First, we invite solar enthusiasts and those new to the field to participate more fully at SOLAR 2008 by opening our event on **Public Days** on Saturday and Sunday — at a discount for riders of mass transit! Featured will be demonstrations, films, speakers, and an exhibit hall with close to 200 booths.

Second, we have added a **Solar Success! Training Event** for dealers and installers to receive the most up-to-date information on the tools and techniques of the renewable energy trade. Accompanying this will also be two **pre-event trainings for solar entrepreneurs**!

Third, we expect the largest attendance ever at an ASES conference at SOLAR 2008 in San Diego. The groundswell of consumer, investor, and media interest in renewable energy has never been more evident.

So, join us in learning about the most recent innovations in solar and hearing from the people who are providing leadership on local, regional, national, and international levels in advancing energy efficiency and renewable energy solutions while together we "**Catch the Clean Energy Wave**" in San Diego, California!

Margot McDonald, AIA, LEED-AP

About the Conference Presenters

The American Solar Energy Society (ASES) is leading the renewable energy revolution. We're the nonprofit organization dedicated to increasing the use of solar energy, energy efficiency, and other sustainable technologies in the U.S. In addition to presenting the ASES National Solar Conference (which is now in its 37th year), ASES also publishes *SOLAR TODAY* magazine, organizes the ASES National Solar Tour, and promotes renewable energy education, outreach, & advocacy. ASES has regional chapters in 37 states and is the U.S. section of the International Solar Energy Society. http://www.ases.org

San Diego Renewable Energy Society (SDRES), a chapter of the American Solar Energy Society, is dedicated to increasing the intelligent use of renewable and sustainable energy technologies in San Diego County. SDRES does this by educating the public about the near and long-term applications and benefits of renewable energy, conservation and energy efficiency; providing expertise for public and government institutions regarding sustainable, renewable and non-polluting energy resources and projects; developing networking opportunities for solar educators, researchers, advocates and business people and supporting legislative initiatives for alternative energy technologies. http://sdres.org/

Northern California Solar Energy Association (NorCal Solar), a chapter of the American Solar Energy Society, was started by a visionary group of engineers and educators in 1975. Throughout its thirty years NorCal Solar has maintained its role as an information portal on all-things-solar for industry professionals, policymakers, advocacy groups, and the general public. The hundreds of Board members and thousands of volunteers through the years may be justly proud of the positive impact NorCal Solar has had on the application of solar energy technology in California. http://www.norcalsolar.org

Redwood Empire Solar Living Association (RESLA), a chapter of the American Solar Energy Society, is an off-shoot of the Solar Living Institute in Hopland, CA, a 501(c)(3) non-profit educational organization whose mission is to promote sustainable living through inspirational environmental education. The Institute provides practical education by example and hands-on workshops on renewable energy, green building, sustainable living, permaculture, organic gardening and alternative, environmental construction methods. http://www.solarliving.org

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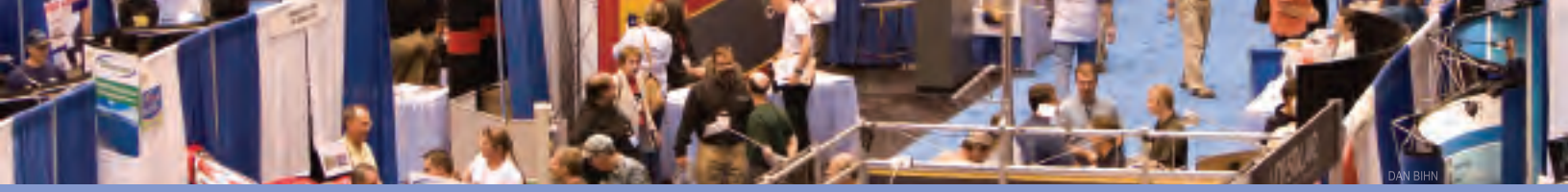
To facilitate ease of use, the main, descriptive section of the SOLAR 2008 Final Program is organized by date and time, with Solar Success! and Dealer/Installer Trainings on the left-hand page, and that day's Conference Sessions on the facing, right-hand page.

Cover photo credits:

left: Martin Bond for Kramer Junction Co. *Parabolic trough collectors at Kramer Junction in California*

right: DOE/NREL, PIX 09395, Angus Duncan. *Solar panels on Orcas Island, Westsound, WA*



Conference Information

Location

Nearly all workshops, conference sessions and the Renewable Energy Products and Services Exhibit are being held at the Town and Country Resort & Convention Center.

Transportation for off-site Events will depart from and return to the Town and Country Resort & Convention Center.

Name Badges and Tickets

Please check in at the SOLAR 2008 Registration counter for your name badge, tickets and totebag. Your name badge is your admission to conference sessions, and your tickets will admit you to the special events, workshops and tours for which you registered.

Conference Registration Counter Hours

Saturday, May 3, 7:30 am – 5:00 pm

Sunday, May 4, 7:30 am – 7:00 pm

Monday, May 5, 7:00 am – 6:00 pm

Tuesday, May 6, 7:30 am – 6:00 pm

Wednesday, May 7, 7:30 am – 5:00 pm

Thursday, May 8, 8:00 am – 12:00 pm

Messages

The Conference message board will be near the registration area. You may leave messages on the board for other attendees.

Speakers' Breakfasts

Speakers, Session Chairs and Moderators should attend the Speakers' Breakfast on the day of their presentation to meet with other speakers in their sessions and receive last minute updates. Please bring biographical information. Speakers' Breakfasts will be from 7:00 am – 8:00 am Monday through Thursday in the California Room (near the conference registration area).

SOLAR 2008 Proceedings

SOLAR 2008 Technical Sessions and the Poster Sessions are presentations based on technical papers. All technical papers and most technical presentations will be published as part of the final conference proceedings. In addition, most Plenary and Forum presentations will also be part of the official conference proceedings.

The conference proceedings will be compiled and published after the conference. Approximately 8 weeks after the conference, everyone who registered for the conference will receive a proceedings CD in the mail. This CD will be a searchable compilation of papers, presentations, and the final attendee list in Acrobat PDF format. When the CD is ready, you may also purchase additional copies at the ASES Online Publications Store. And finally, professional members of the American Solar Energy Society have free access to National Solar Conference Proceedings from 1999 on through their membership log-in on the ASES website.

Publications and Merchandise

ASES will operate a store at SOLAR 2008. Books, merchandise and reports will be available at special conference prices. The store will be open daily from 10:00 am – 5:00 pm, and until noon on Thursday, May 8.

Smoking

Smoking is not allowed in meeting rooms or hallways. Your cooperation is appreciated.

AIA Learning Units

Many Conference sessions can be used by AIA members to meet AIA Learning Unit and Health, Safety and Welfare related requirements. To receive continuing education credit for eligible sessions attended at the SOLAR 2008, AIA members must complete the AIA/CES Program Conference Participation Form C-1. Copies of these forms, which are specific to SOLAR 2008, are available at the Conference registration desk. Forms must be completed and returned to the Conference registration desk by noon on Thursday, May 8. Forms must be completed and correct BEFORE you leave the Conference.

Solar Café

The Solar Café is located in the Exhibit Hall and is open during regular exhibit hours. Coffee and Soda Breaks will be served in the Café, as well as special goodies each afternoon.

Internet Café

High-speed and wireless internet access, sponsored by Renewable Energy World On-line, will be available to all Conference attendees in the Exhibit Hall. Use our computers or your own!

Exhibit Hall

The Solar and Renewable Energy Products and Services exhibit will feature over 150 displays.

The Exhibit Hall is included in your conference, workshop, tour or special event registration. For more information about the Exhibits and other special events associated with the Exhibit Hall, please see the Exhibits Guide — disseminated in your registrant totebag and available in the Exhibit Hall.

PLEASE NOTE: The Exhibit Hall is NOT open for the duration of the conference.

Hours are:

Saturday, May 3, 10:00 am – 5:00 pm (also open to the public)

Sunday, May 4, 10:00 am – 5:00 pm (also open to the public)

Monday, May 5, 10:00 am – 5:00 pm

Tuesday, May 4, 10:00 am – 4:00 pm

Conference Policies

The Conference organizers do not condone discrimination against any individual on the basis of sex, sexual preference, creed, religion, race, national affiliation or physical ability. The organizers do not necessarily condone the policies, political affiliation or opinions of the authors or sponsors. Robert's Rules of Order will govern the Conference. According to these rules, "any person who attempts to disrupt the proceedings in a manner obviously hostile to the announced purpose of the meeting can be . . ." required by the session chair "to leave the hall and they have no right to appeal such an order."

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San Diego SOLAR 2008
Catch the Clean Energy Wave!

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SOLAR SUCCESS! BUSINESS TRAINING AT SOLAR2008! MAY 7-8

The ASES SOLAR 2008, Conergy *Solar Success!* Training Event is the industry's premier training program and technical conference for renewable energy professionals. This comprehensive training is designed to meet the specific needs of solar energy business owners, their employees, and start-ups. **It's not too late! Register onsite today!**

This best-in-class training event features:

- **Installation Workshops:** Industry Best Practices for Installers
- **Manufacturer Product Trainings:** Design for Performance
- **Business Seminars:** Small Business Management Best Practices
- **Sales Seminars:** Selling & Marketing Strategies That Work

SOLAR SUCCESS! FOR START-UPS MAY 5-8

- **Business Seminars:** Small Business Management Best Practices
- **Sales Seminars:** Selling & Marketing Strategies That Work

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SANYO

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SMA

Southwest Windpower Renewable Energy Made Simple

UNIRAC

U.S. Department of Energy Energy Efficiency and Renewable Energy

xantrex Smart choice for power

Media

SOLAR TODAY

EARTHTOYS

enerG

Environmental Design+ Construction

Clean Energy

PHOTON International

Sustainable Facility

Scholarship

EnergyTrust of Oregon, Inc

Greening SOLAR 2008

ASES is committed to holding a sustainable annual conference.

With your help, ASES will leave the smallest possible environmental footprint in San Diego.

Green Tags

Green Tags are created when solar or other renewable energy is substituted for traditional power. Green Tags represent the real savings in carbon dioxide and other pollutants that occur when green power replaces burning fossil fuel.

ASES acquires enough Green Tags to offset all of the electricity and fuel used at the National Solar Conference, including energy used at the Resort and Convention Center for the meetings, sessions, trade show and events and the electricity used by our attendees staying at the Town and Country.

This year, we purchased a total of 122, 100% Solar green tags, for a total of 122,000 kWh of electricity, and offsetting 157,990 pounds of green-house gas emissions. We purchased the tags from the Bonneville Environmental Foundation. For more information about B-E-F's green tags, go to https://www.greentagsusa.org/GreenTags/

In addition, Lakeland Electric (Lakeland, FL) has generously donated their combination PV and Solar Hot Water green tags to offset the emissions from the bus transportation used for the tours and Pirate Party.

Other Institutional Green Practices

- We communicate mainly via e-mail with our presenters and our attendees.
- We make it easy for you to register on-line before and at the conference.
- We made a system to share a hotel room and carpool to the conference available on the conference website.
- We selected a venue and a hotel that are easy to get to on public transportation. No need to rent a car for SOLAR 2008!
- We selected a hotel that utilizes green housekeeping practices — conducting linen and towel changes less often or by request.
- We publish all the information about our conference on our website.
- We are offering our exhibitors a paperless lead tracking system.
- We will provide water coolers rather than bottled water for our attendees, and everyone will get their own reusable bottle.
- We provide the conference proceedings and final attendees list on CD-ROM rather than in paper format.
- We carefully analyze our food usage from past years to better estimate our usage this year. We produce less waste and keep costs down.

Your actions can help too!

- Buy Green Tags for your own travel — information is available at the registration counter.
- Pay attention to signs in your hotel room about saving energy and water.
- Put waste in appropriate recycle containers.
- Use the water bottle you got in your totebag throughout the week and when you get home.

DAN BIHN

Featured Speakers

Conference Opening Plenary

Sunday, May 4 • 6:30 pm

Donna Frye

San Diego City Councilmember, District 6

A successful business owner with a bachelor's degree in business, Donna Frye has served the public and City of San Diego as a Councilmember since 2001. During her tenure, Frye has distinguished herself as an independent thinker who fights relentlessly for an open and honest government that is accountable to the public. For her work, Senator Christine Kehoe honored her in Sacramento as the 2004 Woman of the Year. Councilmember Frye chairs the Natural Resources and Culture Committee and serves on both the Budget & Finance Committee and Rules Committee. She is also the Chair of the Mission Bay Technical Advisory Committee and the San Diego River Conservancy.

Irene M. Stillings

Executive Director

California Center for Sustainable Energy

Stillings has held various executive positions at New York State Electric & Gas Corporation, ConneXt, Inc., a software company providing premier products and services to the energy industry, and Navigant Consulting, Inc., a multi-national firm providing a wide array of consulting services to utilities, insurance, and financial firms. She is also the owner of imsMENTOR, a consulting firm focusing on enhancing individual and organizational effectiveness.

John S. Reynolds F.A.I.A.

Chair

American Solar Energy Society

John S. Reynolds joined ASES in 1975, and served on the board from 1984–1990, and as Vice Chair 1985–1987. Reynolds received the American Solar Energy Society's Passive Pioneer Award in 1997, and was elected a Fellow in 2000. He served as Chair of three ASES national conferences in Portland, Oregon: 1981, 1987, and 2004. A Professor of Architecture Emeritus at the University of Oregon, Reynolds was named a Fellow of the American Institute of Architects in 2003. He was also named Distinguished Professor by the Association of Collegiate Schools of Architecture in 1998. He is currently a board member and Vice President of the non-profit Energy Trust of Oregon. He is co-author of *Mechanical and Electrical Equipment for Buildings,* 6th through 10th editions, published by John Wiley & Sons. His grant from the Graham Foundation for Advanced Studies in the Fine Arts, 1995–96 resulted in *Courtyards: Aesthetic, Social, and Thermal Delight* ©2002, John Wiley and Sons.

Tony Haymet

Director

Scripps Institution of Oceanography

Dr. A.D.J. "Tony" Haymet became Vice Chancellor for Marine Sciences, Director of Scripps Institution of Oceanography and Dean of the Graduate School of Marine Sciences, UC San Diego, in September 2006. Haymet is a highly distinguished researcher who comes to UC San Diego from his position as the Science and Policy Director and former Chief of Marine and Atmospheric Science at the Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia's national science research agency. CSIRO is one of the largest and most diverse research agencies in the world. Dr. Haymet is a tenured professor of oceanography at Scripps. He holds a Ph.D. from the University of Chicago and a Doctor of Science from the University of Sydney.

Molly Tirpak Sterkel

Program Supervisor

California Solar Initiative and Distributed Generation section

California Public Utilities Commission's (CPUC's) Energy Division

Molly Tirpak Sterkel's career has focused on the development of policies and programs related to clean energy, including climate change, renewable energy and energy efficiency. Prior to joining the CPUC in 2005, Sterkel worked for ICF Consulting, PG&E, and helped start two clean energy related non-profits — the California Climate Action Registry and the Center for Resource Solutions. She received her Master's degree in Public Policy from Harvard University's John F. Kennedy School of Government, and a BS from Georgetown University.

Awards Banquet

Monday, May 5 • 7:00 pm

Randy Udall

Director

Community Office for Resource Efficiency

Randy Udall is one of the nation's leading activists in promoting energy sustainability. CORE's partnerships with individuals, governments, and utilities have led to some remarkable accomplishments, including Colorado's first solar energy incentive program, the world's first Renewable Energy Mitigation Program which has raised $6 million, the world's stiffest carbon tax, and some of the most progressive green power purchasing programs in the country. Udall wrote his first article on climate change in 1987. A solar retrofit of his home in Carbondale, CO will keep 300,000 pounds of carbon dioxide out of the atmosphere during the next 20 years. Udall is also co-founder of the Association for the Study of Peak Oil – USA, and speaks widely on why "energy is an IQ test Americans tend to fail."

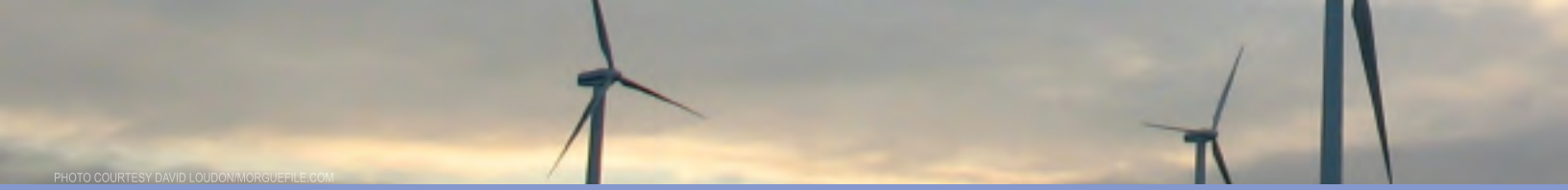


PHOTO COURTESY DAVID LOUDON/MORGUEFILE.COM

Featured Speakers

Policy and Marketing Solutions Plenary

Monday, May 3 • 8:30 am

Michael Dworkin

Director of the Institute for Energy and the Environment and Professor of Law

Vermont School of Law

Professor Michael Dworkin is a nationally recognized leader in energy and environmental law. He has been a utility regulator, an environmental litigator, and a successful small businessman. Dworkin heads the Institute for Energy and the Environment, at the Vermont Law School, which offers an advanced curriculum on energy and regulatory law, provides forums and conferences for professional education and issue development, and serves as a center for graduate research and publication on environmental and energy issues. Dworkin earned his B.A. degree in history from Middlebury College, summa cum laude, in 1975 and his J.D. from Harvard Law School, cum laude, in 1978. Dworkin is a director of the American Council for an Energy Efficient Economy and an 'outside' director of the Electric Power Research Institute.

Senator Gary Hart

Scholar in Residence at the University of Colorado

Distinguished Fellow at the New America Foundation

Since retiring from the United States Senate, Gary Hart has been extensively involved in international law and business, as a strategic advisor to major U.S. corporations, and as a teacher, author and lecturer. He is currently Scholar in Residence at the University of Colorado and Distinguished Fellow at the New America Foundation. He was recently named chairman of the Council for a Livable World and is chairman of the American Security Project. He was co-chair of the U.S. Commission on National Security for the 21st Century. The Commission performed the most comprehensive review of national security since 1947, predicted the terrorist attacks on America, and proposed a sweeping overhaul of U.S. national security structures and policies for the post-Cold War new century and the age of terrorism.

Van Jones, Esq.

Founding President

Green for All

Van Jones is working to combine solutions to America's two biggest problems — social inequality and environmental destruction. In 1996, Jones and Diana Frappier co-founded the Ella Baker Center for Human Rights, which is now headquartered in Oakland, California. Named for an unsung civil rights heroine, the Center promotes positive alternatives to violence and incarceration. Over the past five years, Jones has also emerged as a national environmental leader. Under the slogan "green jobs, not jails," Jones today is calling for green economic development in urban America through his latest venture, Green For All, a national campaign for green-collar jobs and opportunities.

Renewable Energy Technology Solutions

Tuesday, May 4 • 8:30 am

Jigar Shah

Chief Strategy Officer

SunEdison

Jigar Shah is a founder and a member of the board of directors for SunEdison. Shah has extensive experience in both the PV solar and wind industries. Before founding SunEdison in 2003, Shah worked in mergers & acquisitions, corporate strategy, and sales — specializing in national commercial accounts — for industry giant BP Solar. Along with working for the Department of Energy on alternative vehicle and fuel cell programs, Shah has worked in an engineering capacity for both AstroPower, the largest publicly traded pure-play PV solar company, and Atlantic Orient Corporation, a leader in the medium sized wind turbine market. Shah earned a B.S. in Mechanical Engineering from the University of Illinois, Champaign-Urbana and his MBA from the Robert H. Smith School of Business at the University of Maryland.

Chuck Kutscher

Principal Engineer and Manager of the Thermal Systems Group

National Renewable Energy Laboratory

Chuck Kutscher has worked at the National Renewable Energy Laboratory in Golden, Colorado for 29 years. His research interests include concentrating solar power, solar heating, and geothermal electricity generation. He served for nine years on the Board of Directors of the American Solar Energy Society (ASES), including a two year term as Chair (2000–2001). Kutscher was General Chair of the SOLAR 2006 National Solar Energy Conference held in Denver in July 2006, which brought the nation's top climate scientists and renewable energy experts together to develop solutions to global warming. He is editor of the ASES report, *Tackling Climate Change in the U.S.*, available at http://www.ases.org/climatechange/

Featured Speakers

Plenary

Ed DeMeo

President

Renewable Energy Consulting Services, Inc.

Ed DeMeo has been an independent consultant in renewable energy since early 1999, providing technical and management support to several federal and state programs aimed at advancing renewable power. Focusing primarily on wind for the past several years, he is a strategic advisor to the DOE-NREL Wind Energy Program, the Utility Wind Integration Group and the National Wind Coordinating Collaborative. From 1976 to 1999 he managed utility-oriented renewable energy programs at the Electric Power Research Institute (EPRI), where he had responsibility for major development and test programs in photovoltaics, solar thermal electric and wind power. While at EPRI, he was a recipient of *Discover Magazine*'s 1993 Annual Technology Award in the Environment Category. And in 2004, he received the DOE Wind Energy Program's Outstanding Program Leadership Award. DeMeo is an electrical engineering graduate of RPI, and holds Masters and Ph.D. degrees in electrical engineering science from Brown University where he served as an associate professor (research) on the engineering faculty.

Craig Cornelius

Principal

Hudson Clean Energy Partners

Craig Cornelius joined Hudson Clean Energy Partners in January, 2008. Prior to joining Hudson, Cornelius served as the Program Manager of the U.S. Department of Energy's (DOE) Solar Energy Technologies Program, where he led the $1.5 billion "Solar America Initiative" and secured a 240% increase in annual program funding over his tenure. Prior to joining the DOE's Solar Program in 2005, Cornelius directed strategic reviews of the DOE's 11 Energy Efficiency and Renewable Energy programs, which totaled approximately $1.2 billion in annual R&D funding at that time, guiding improvements in program strategies, R&D portfolio management, and market research. Cornelius came to DOE from NASA, where he served as Chief of Staff for Development Programs.

Emerging Transportation

Tuesday, May 4 • 8:15 pm

Chris Paine

Film producer, director, writer

Wrote and directed *Who Killed the Electric Car?*

Chris Paine's documentary feature film *Who Killed the Electric Car?* premiered at the Sundance Film Festival in 2006 before its worldwide release by Sony Pictures Classics. Three years in the making, the film's murder mystery take on an almost unreported story captured public attention, won numerous awards, and helped to stimulate change in the industry. Outside of media, Paine is an entrepreneur and environmentalist. His technology company Internet Outfitters went public in 1999 as part of AppNet/CommerceOne. His firm Mondo-tronics, (founded with his highschool friend Roger Gilbertson) provided materials for the Mars Pathfinder mission. Paine's activist work includes campaigns to stop nuclear testing in Nevada, block a freeway in California, and promote urban street trees.

Chelsea Sexton

Executive Director

Plug In America

Chelsea Sexton is a Los Angeles area native who found her passion at an early age with the General Motors EV1 electric vehicle program. When General Motors ended the EV1 program in 2001, Sexton continued to focus on how cars and energy technology may be used to improve our global economy and environment through her non-profit, Lightning Rod, and serves as the Executive Director of Plug In America. Sexton is one of the key individuals featured in the 2006 film, *Who Killed the Electric Car?* by Sony Pictures Classics, the book *Plug-In Hybrids, the Cars that Will Recharge America* by Sherry Boschert, and in the Sundance Channel Series, *Big Ideas for a Small Planet*.

Stephen Heckeroth

Owner/Founder

Homestead Enterprises

Homestead Enterprises specializes in renewable energy products, solar design, electric vehicles and Building Integrated Photovoltaics (BIPV). Heckeroth also is currently vice-president for Product Development at Solargystics LTD. He has designed and built over 30 passive solar homes. His writing on solar energy has been published in *Mother Earth News*, *Home Power*, *SOLAR TODAY* magazine and many other regional publications. His work has been featured on national and international TV and in magazines and books since 1992. He is currently an Advisory Board Member at Solmetric Corp. and Chair of the ASES Renewable Fuels and Transportation Division.

Featured Speakers

Community Solutions

Wednesday, May 7 • 8:30 am

Timothy N. Tutt

First Advisor to Chairman Jackalyne Pfannenstiel

California Energy Commission

Tim Tutt has worked at the Commission since 1990, primarily addressing renewable energy, energy efficiency and forecasting issues. Prior to his current position, Tutt served as the Technical Director of the Renewable Energy Program (REP), helped start the REP in 1997, and worked for five years on energy efficiency, air quality, and demand forecasting issues. Prior to joining the Commission, Tutt was at Southern California Edison for eight years and at the Jet Propulsion Laboratory for 3 years, including work on solar economics issues. Tutt received a Bachelor of Science Degree in Social Science from the California Institute of Technology in 1979.

Julie Blunden

Vice President

Public Policy & Corporate Communications

SunPower Corporation

Julie Blunden joined SunPower in April of 2005 and serves as vice president, public policy and corporate communications. She is responsible for public relations, financial relations, public policy, and market development. Prior to SunPower, Blunden was a consultant at KEMA-XENERGY on energy markets, renewable resources and policy to industry, utilities and state and federal governments. In this capacity in 2004, Blunden supported the Schwarzenegger administration in developing the Million Solar Homes Initiative. In 1997 she co-founded Green Mountain Energy Company, a national retail electric supplier of renewable power. Blunden began her career doing development and acquisitions in the independent power generation business at the AES Corporation. Blunden received her MBA from the Stanford Graduate School of Business and an AB from Dartmouth College majoring in engineering, modified with environmental studies. She serves on the Board of Directors at the Center for Resource Solutions and the Real Goods Solar Living Institute, as well as on the Board of Advisors for Vote Solar.

Daniel Lerch

Post Carbon Cities Program Manager

Post Carbon Institute

Daniel Lerch is the author of *Post Carbon Cities: Planning for Energy and Climate Uncertainty*, the first major local government guidebook on peak oil and global warming. Lerch is a program manager with Post Carbon Institute, and has worked on urban planning issues for over ten years in the public, private and non-profit sectors. He authored one of the first local government policy assessments of peak oil while a Policy Associate at Metro, the regional government of the Portland, Oregon area. He also co-founded The City Repair Project, an award-winning non-profit organization working on community public space issues. Lerch has a Bachelor of Arts in Urban Studies from Rutgers University in New Jersey and a Master of Urban Studies from Portland State University in Oregon.

Edward Mazria AIA

Founder

Architecture 2030

Edward Mazria is an internationally recognized architect with a long and distinguished career. His architecture and planning projects span over a thirty year period, and each employs a cutting-edge environmental approach to its design. His published material includes technical papers, articles for professional magazines, and a number of published works including *The Passive Solar Energy Book,* published by Rodale Press. He outlines his strategy for addressing today's most pressing global challenge, climate change, in his article "It's the Architecture Stupid!" (*SOLAR TODAY*) and in subsequent pieces "Turning Down the Global Thermostat" (*Metropolis*) and "Blueprint for Disaster" (*On Earth*). He is the founder of Architecture 2030 (www.architecture2030.org), a non-traditional and flexible organization focused on protecting our global environment. He speaks nationally and internationally on the subject of the architecture, design, energy and climate change.

Closing Luncheon

Thursday, May 8 • 12:30 pm

Bracken Hendricks

Senior Fellow

Center for American Progress

At the Center for American Progress, Bracken Hendricks works on issues of climate change and energy independence, environmental protection, infrastructure investment, and economic policy, with a focus on broadening progressive constituencies and message framing. Hendricks served in the Clinton Administration as a Special Assistant to the Office of Vice President Al Gore. Hendricks was the founding Executive Director and is currently a National Steering Committee member of the Apollo Alliance for good jobs and energy independence, a coalition of labor, environmental, business and community leaders dedicated to changing the politics of energy independence.

Tours

Tours highlight local attractions and renewable energy installations. Tours require separate registration. You do not have to register for the conference to sign up for a tour.

All tours depart from and return to the sidewalk area outside the west doors of the SOLAR 2008 registration lobby.

PV and Wind on the Reservation - T01

Saturday, May 3 • 8:30 am – 5:00 pm

Price: $70.00

Tour Guide: *Scott Debenham, Consulting Engineer and Alan Ridley, Grossmont-Cuyamaca Community College District*

Learn from the Indians how important wind power is in their close-to-nature philosophy, about the excellent wind resource that exists on several Indian reservations in San Diego County and why wind power must play a critical role in San Diego's future. First stop will be the Kumeyaay Reservation, to view their new 50 MW wind farm and see the 1.5 MW wind turbines in action.

Your next stop will be a leisurely lunch break (lunch on your own) at the Indian Golden Acorn Casino, followed by a visit to the nearby Alpine School to see a 270 kW PV system consisting of 3 types of PV: Roof-mounted crystalline modules, 2-axis trackers, and thin-film PV. Learn the important lessons learned there.

Kyocera's "Solar Grove" and San Diego Attractions - T02

Saturday, May 3 • 8:30 am – 5:00 pm

Price: $85.00

Tour Guide: *Marilyn Driscoll, San Diego County*

See three large photovoltaic sites of over 96 kW each. Begin with Kyocera's uniquely attractive "Solar Grove" PV parking lot shade structure, consisting of 25kW one-pedestal architecturally designed shade structures. Next proceed to the 100 kW PV system at the Rueben H. Fleet Museum at the beautiful Balboa Park. Have lunch on your own at the park and see the museums and galleries. Then see the beautiful Children's Museum nearby with a 96 kW PV array. All in all, a very enjoyable day!

Sun Harbor Marina & Rio Vista Building - T03

Saturday, May 3 • 9:00 am – 3:00 pm

Price: $60.00

Tour Guide: *Marty Offenhauer, San Diego Renewable Energy Society*

Begin with the nation's first LEED certified marina on the shore of San Diego Harbor. See three beautifully designed buildings that feature excellent views and daylighting, including unique light shelves. See the yachts and the harbor. Have lunch (on your own) at the popular on-site Pizza Nova Restaurant, or stroll two blocks to the equally popular Point Loma Seafood Restaurant, noted for deli-type seafood sandwiches. Relax and enjoy the fresh ocean air while eating.

Your next stop is an interesting older (25 years old) green office building in Mission Valley (near the Town and Country Hotel). This building was an early pioneer in green office building design, and features excellent daylighting and a different light shelf concept. It also has a lush, landscaped courtyard for the pleasure of the occupants. See how sensible, energy-efficient design, coupled with a pleasurable environment, can improve worker productivity.

The engineer who designed the building will be available for questions.

Scripps Aquarium and Black Mountain Ranch - T05

Sunday, May 4 • 9:00 am – 3:00 pm

Price: $85.00, includes lunch

Tour Guide: *Guido Hamacher, Energy Smart Loans, with assistance from docents and green building experts*

See the world famous Scripps Aquarium by the Pacific Ocean. Enjoy a docent-guided tour through the aquarium and the "Feeling the Heat: The Climate Change" exhibit. See what Scripps Institute of Oceanography scientists are learning about global warming. Enjoy the fascinating Birch Aquarium and have lunch on the beautiful site. Then ride a short distance to the Black Mountain housing development which features a Platinum LEED ranch house and green residences. See first-hand the many green building options that look attractive and make good economic sense. The Ranch House may be the most environmentally conscious building in San Diego County.

Solara Development and Stone Brewing Company - T06

Sunday, May 4 • 9:00 am – 4:00 pm

Price: $70.00

Tour Guide: *Don Christiansen, San Diego Renewable Energy Society*

Visit this new development which has been a feature on San Diego news and see that low income housing can be beautiful and environmentally friendly. These homes have solar systems and many green building features that are artfully integrated into the community. Proceed to the Stone Brewing Company restaurant and pub in north San Diego County, which features a 360kW PV parking shade structure system, which will provide over half the company's power needs. Learn about the new PV technology, Heterojunction with Intrinsic Thin Layer. See how they use biodiesel for their delivery trucks. Have a delicious lunch (on your own) at the popular brewery. One reviewer of the new restaurant said, "Good beer and good karma!"

Ridgehaven Building & IBEW PV Training Center - T07

Thursday, May 8 • 2:00 pm – 5:00 pm

Price: $50.00

Tour Guide: *Maggi Veltre, San Diego Renewable Energy Society*

The Ridgehaven Building is unique as one of San Diego's first green building retrofit projects in the mid-90s. It serves as the headquarters for the San Diego City Environmental Services Department, whose mission is to act as a model and catalyst for other city-wide green programs. It features an educational lobby display and has a 50kW photovoltaic rooftop system. It has a unique value in being able to compare its energy usage with that of an identical office building nearby. The results are impressive. Almost across the street from the Ridgehaven Building is the IBEW #569 (International Brotherhood of Electrical Workers) training center, which has a large (and growing) PV array on the roof. See the standards of craftsmanship of these electricians.

Workshops • Saturday, May 3

Professional Workshops provide a more detailed and structured treatment of relevant topics in a much longer format than 90 minute conference sessions. Professional Workshops are geared toward those people working in the Renewable Energy field. Professional Workshops are typically four or eight hours long.

We are also offering Consumer Workshops at SOLAR 2008. For more information, please see the Exhibits Guide.

Workshops require separate fees and registration. You do not have to register for the conference to sign up for a workshop. Space in workshops is limited.

Introduction to Distributed Power Systems - PW02 Windsor

8:30 am – 12:30 pm

Registration Price: $100.00

Presented by: *Gerard G. (Jerry) Ventre, Engineering Consultant and Former Director of the Photovoltaics and Distributed Generation Division of the Florida Solar Energy Center*

The workshop begins by considering three major challenges of the 21st Century: a) alleviating the growing divergence between diminishing supplies of fossil fuels and worldwide demand for more and more energy, b) enhancing national security by reducing dependency on foreign imports of energy resources, and c) reducing greenhouse gas emissions from the burning of fossil fuels through the better use of technology and alternative energy resources. Next, the advantages of distributed and on-site generation of electricity are explored, including the tremendous efficiency and environmental benefits of distributed combined heat and power systems, especially for fuel-based power systems. Comparisons will be made between traditional central generation and newer distributed power systems. After considering the various drivers affecting decision-making in the power generation marketplace, the merits of photovoltaic systems, wind turbines and other renewable technologies will be discussed. These sustainable energy technologies represent long-term solutions to our energy problems. However, key questions that need to be addressed are: "How do we get there from here?" and "How long will it take?" A case can be made for using much more efficient and effective fuel-based power systems, together with the development and application of rapidly growing renewable energy technologies, to transition over several decades from our current energy dilemma to a more sustainable energy future.

Materials to be provided to attendees include a compendium of all workshop slides, and a list of selected references and useful web sites.

Who should attend? The target audience for this workshop includes solar and alternative energy professionals and policy analysts, utility representatives, energy planners and managers, energy systems engineers, building designers and the interested public.

Earns AIA CEUs and HSW Credits

SRCC OG300 Installation Guidelines for Solar Hot Water Systems - PW03 Garden Salon Two

8:30 am – 12:30 pm

Registration Price: $95.00

Presented by: *Jim Huggins and John Harrison, Solar Rating & Certification Corporation (SRCC)*

The SRCC OG300 Operating Guidelines and Minimum Standards that impact system installation will be described. Examples of both good and poor system installations will be presented. Attendees will be provided with the proper knowledge base with which to conduct inspections of OG300 solar water heating systems. Please note that the workshop emphasis will be on system installation guidelines and not general overall system design.

Materials to be provided to attendees include a binder with paper and CD copies of the workshop presentation. Various installation materials and tools will be available for demonstration. This will include flashing materials, sealant materials, site selection tools, to name but a few.

Who should attend? This workshop is targeted at manufacturers, contractors, building inspectors, code officials, utility companies, agencies developing solar programs, and all other parties interested in assuring quality system installations and knowledge of OG300 installation guidelines.

Advanced Daylighting Design Workshop - PW04 Sunset

8:30 am – 5:30 pm

Registration Price: $195.00, includes lunch

Presented by: *Victor Olgyay, AIA, Principal and Josh Hathaway, Analyst, Rocky Mountain Institute*

The perception of light, natural or electric, is integral to the experience of architecture. The presence of daylight brings both visible light and heat to a space, and is intimately connected to the flow of energy in and out of any enclosure. Proper daylighting design creates a superior visual environment as well as reducing energy consumption and environmental impacts. This session will go beyond the fundamental issues for providing daylight to focus on how to design, evaluate and integrate daylighting for high performance design. This session is focused on providing information to people in the practice of building design to achieve a more complete ability and understanding of the potential of daylighting design.

Materials to be provided to attendees will include a workbook with various daylighting resources and speaker notes, and a CD-ROM with additional reference materials and software to assist with daylighting design.

Who should attend? Architects, engineers, and lighting designers

Earns AIA CEUs and HSW Credits

Building Solar - PW05 Hampton

Saturday, May 3 and Sunday, May 4

8:30 am – 5:30 pm

Registration Price: $375.00, includes lunch each day

Presented by: *Alison Mason, SunJuice Solar and Andy Walker, Ambient Energy*

You want to include solar energy in your next building project but you don't know where to start. Which technologies will contribute to your project? At what stage do you need to start planning for solar energy? What design considerations do solar technologies impose? How much will it cost? Does it make sense economically? How will it look? If these are the kinds of questions you have, this is the right workshop for you. We will teach the design fundamentals for all solar technologies that can be incorporated into a building so that you can evaluate your project for solar potential and understand how to integrate it.

Materials to be provided to attendees

- Workshop agenda
- Workbook with fundamentals by chapter
- CD-ROM with presentations and supplementary material (articles and case studies)

Who should attend? Builders, architects, engineers, facility managers, energy managers, and developers.

Earns AIA CEUs and HSW Credits

Workshops • Saturday, May 3

Commercial and Industrial Photovoltaics - PW06 — Sheffield

8:30 am – 5:30 pm

Registration Price: $195.00, includes lunch

Presented by: *Roy Phillips, VP Commercial Sales, Real Goods Solar*

New rebates and incentives make large-scale PV a cost-effective strategy for controlling energy costs, and one of the best investments for business health. As concerns grow over escalating energy prices, more businesses and property owners are discovering the financial benefits of solar electric. There is a myriad of options available these days, making uninformed choices challenging. This workshop will give you the tools to make the best decisions and transform your rooftop from a cost center to a profit center.

Who should attend? Business and property owners, people working in the PV industry

Course Development for Renewable Energy Training Programs - PW07 — Royal Palm One

8:30 am – 5:30 pm

Registration Price: $195.00, includes lunch

Presented by: *Barbara L. Martin. Ph.D., Independent Consultant, former faculty, U of Central Florida and former Research Assistant, Florida Solar Energy Center*

This workshop will walk participants through the essential steps of designing or revising a training course. Using the NABCEP task analyses as the foundation, the workshop will focus on analyzing the learners, creating goals and objectives, selecting materials and learning strategies, using good presentation skills, and creating tests or evaluation instruments. Participants should bring a topic or several learning objectives that they can use as the basis for designing a short segment of instruction.

Materials provided to attendees will include a 60 page workbook that includes handouts, PowerPoint slides, and three NABCEP task analyses: Solar Photovoltaic System Installer, Solar Water and Pool Heating Systems, Small Wind Energy System Installer

Who should attend? Educators and trainers interested in creating and/or maintaining a renewable energy training/education program.

LEED for New Construction Training - PW08 — Sunrise

8:30 am – 5:30 pm

Registration Price: $275.00, includes lunch

Presented by: *James Scott Brew, FCSI, AIA, LEED® AP and Ashley Muse, Rocky Mountain Institute*

The LEED Green Building Rating System has been adopted by many cities, states, and government agencies as a requirement for development. Are you "up to speed with LEED?" This workshop has been designed to get you there and prepare you for taking the LEED AP exam. Taught by experienced LEED practitioners with over 1,000 persons trained and excellent evaluations, this session promises to be as entertaining as it is educational.

Materials provided to attendees will include a series of handouts developed by the Rocky Mountain Institute to support learning about the LEED rating system.

Who should attend? Design and construction professionals or owners and individuals interested in learning the details of the LEED Green Building Rating System, including those interested in seeking to attain the LEED Accredited Professional designation.

Earns AIA CEUs and HSW Credits

Small Wind Power for Homes, Farms, Business, and Schools - PW09 — Garden Salon One

8:30 am – 5:30 pm

Registration Price: $195.00, includes lunch

Presented by: *Jim Green, National Renewable Energy Lab and Robert Preus, Abundant Renewable Energy*

This workshop will provide an overview of wind power with an emphasis on small wind turbine applications. Attendees will understand the fundamental considerations of wind resource, wind turbine technology, and economics. Participants will understand the basic steps of a successful small wind project including system sizing, tower height, micro-siting, and permitting. The workshop will also explore the complementarity of solar and wind resources and will include case studies of successful projects that combine wind and PV.

Materials provided to attendees will include:

- Handout (hardcopy) of PPT slides covering the core material in the workshop.
- *Small Wind Electric Systems, A U.S. Consumer's Guide* and other pertinent small wind articles and references on a CD.

Who should attend? PV distributors/dealers/installers, educators, students, and renewable energy advocates. The workshop will be excellent for individuals considering wind power installations including homeowners, farmers, ranchers, small business owners, and managers of public facilities such as schools. The workshop will be valuable to anyone who wants an overview of small wind applications and of the current technology in the market.

A Technical Introduction to Solar and Radiant Floor Applications - PW10 — Garden Salon Two

1:30 pm – 5:30 pm

Registration Price: $95.00

Presented by: *Paul Izenstark, Director of Technical Services, Warmboard Inc.*

This half day training course will cover the features and benefits of a radiant floor heating system. The training will expand on the different products available and assemblies required for a radiant heating installation. The course will also elaborate on the application and installation of interfacing evacuated tube solar collectors and flat plate thermal collectors to a radiant floor heating system.

Materials provided to attendees will include a resource binder with detailed specifications of many different types of radiant panels available, high efficiency boilers available, and solar collectors available. Specifications of pumps and controls will also be included.

Who should attend? Architects, residential designers, building contractors, thermal solar energy installing contractors, energy consultants and early adopters.

Earns AIA CEUs and HSW Credits

Field Verification and Diagnostic Testing of PV Systems for Installers - PW11 — Windsor

1:30 pm – 5:30 pm

Registration Price: $95.00

Presented by: *Ryan LeBlanc, Resident Renewable Energy Instructor, Solar Living Institute*

Designed specifically for solar photovoltaic system installers, this course will provide a detailed review of post installation verification inspections performed by Home Energy Raters for solar rebate initiatives such as the New Solar Homes Program and California Solar Initiative. Topics include field verification methods for measured versus expected power output, equipment such as PV modules and inverters, shading analysis and characteristics, measurement of actual solar radiation, use of solar/shading measurement tools and devices, and expected future impact of trees. The PV performance calculator and CEC new construction compliance forms (CF-1R-PV, CF-4R-PV, CF-6R-PV) will also be reviewed. Know in advance how HERS Raters will inspect your installation so that you can pass the first time!

Who should attend? Solar photovoltaic system installers

Workshops • Sunday, May 4

Designing High Performance Homes - PW12

Garden Salon One

8:30 am – 12:30 pm

Registration Price: $95.00

Presented by: *Murray Milne, Research Professor, UCLA Department of Architecture and Urban Design; Bruce Haglund, Professor, Department of Architecture, University of Idaho and Carlos Gomez, Research Associate, UCLA Department of Architecture and Urban Design*

High Performance Homes can be designed to minimize their consumption of energy, their generation of green house gasses, and their cost of operation. In this hands-on workshop you will learn how to quickly design and then successively fine tune your home using the latest version of HEED (Home Energy Efficient Design), one of the most popular and user friendly beginning-phase design tools. Please bring your laptop and you will experience how to use HEED's fill-in-the-squares multi-level floor planner, click and drag window placement, graphic plots of annual energy consumption, annual CO_2 production, and annual energy costs for fuel and electricity.

Materials provided to attendees will include a handout, a copy of the software loaded on each person's laptop (PC or MAC), or a CD for the rest to take home containing the software plus the PowerPoint of the workshop presentation. Participants are encouraged to bring their own laptops.

Who should attend? Architects, builders, energy consultants, homeowners

Earns AIA CEUs and HSW Credits

PV Payback and Financial Analysis - PW13

Sheffield

8:30 am – 12:30 pm

Registration Price: $110.00

Presented by: *Andy Black, OnGrid Solar*

Learn how to understand, calculate, and demonstrate the economics of PV projects. Much more than just "payback," you'll learn how to calculate the IRR (rate of return for comparison to other investments), cash flow if the project is financed, resale value increase and lifecycle payback of PV projects, and understand which variables are the key drivers (electric rates — tiers & time-of-use, incentives, RECs, net metering, real system loss factors, etc). Geared towards the California market but applicable anywhere the economics are attractive (NJ, HI, +?).

Materials provided to attendees will include

- Copies of the PPT slides as handout for note taking
- Copies of a popular article on the Payback for PV written by the presenter
- A list of links and online resources and tools such as the DSIRE Database, Clean Power Estimator/Quick Quotes, the OnGrid Solar Financial Analysis Tool, PVwatts, etc.
- One month demo use of the OnGrid Solar Financial Analysis Tool (license agreement required).

Who should attend? Dealer/Installer owners & their salespeople, marketers, policy makers, and investors who need to understand better how and why solar can make economic sense, and how to use it effectively to increase sales and the acceptance of solar as an economically viable choice for many consumers.

Roofpond Building Design — Heating and Cooling Applications - PW14

Royal Palm One

8:30 am – 12:30 pm

Registration Price: $95.00

Presented by: *Alfredo Fernandez-Gonzalez, Natural Energies Advanced Technologies Laboratory, University of Nevada, Las Vegas*

This half-day workshop will focus on learning the skills necessary to design, construct, and predict the energy savings produced by roofpond buildings. The workshop will present fundamental design concepts and will introduce system variations to adjust roofponds to different climatic regions. As part of this workshop, participants will engage in a design exercise using the software RP_Performance v.2. (participants are encouraged to bring a laptop computer). At the end of this course participants will have the information and tools to design and build residential roofponds. Materials provided to attendees will include two handouts, and a CD containing RP_Performance v.2 will be distributed to all participants. The first handout will have a copy of the workshop slides. The other handout will present a series of case studies and their documented performance. Participants are encouraged to bring their own laptops.

Who should attend? Architects, builders, residential developers.

Earns AIA CEUs and HSW Credits

Advanced Solar Water & Space Heating Systems - PW15

Sunset

8:30 am – 5:30 pm

Registration Price: $195.00, includes lunch

Presented by: *Thomas H. Lane, ECS Solar Energy Systems*

Tom Lane, elected to the Solar Hall of Fame in 2006, author of *Solar Hot Water Lessons Learned 1977 to Today*, and author of *The Study Guide for the NABCEP Solar Thermal Certification Exam*, will be presenting a unique advanced course based on using the latest solar thermal technology available for solar hot water and space heating. The author will present the latest European and American technology for closed loop indirect pressurized glycol and drainback systems to optimize system performance. There will be a special hour of group interaction and education based on the participants' current experience.

Materials to be provided include the Advanced Contractors Version of *Solar Hot Water Lessons Learned 1977 to Today* with additional handouts of brochures from major solar manufacturers of systems and components, and a CD of solar thermal CAD drawings and designs.

Who should attend? Solar thermal contractors, designers and educators

Earns AIA CEUs and HSW Credits

Permit and Inspection Guidelines for PV Power Systems - PW16

Windsor

8:30 am – 5:30 pm

Registration Price: $195.00, includes lunch

Presented by: *Bill Brooks, Solar America Board of Codes and Standards/Brooks Engineering*

This all day course will focus on the details required for a complete package for PV system permits. It will discuss what information is needed to provide the authority having jurisdiction (AHJ) with sufficient information to approve the project for construction. This course will present examples and calculations that are necessary for the installer to provide to the AHJ. The final segment of the workshop will review field inspection criteria that will help inspectors and installers properly review installed systems.

Who should attend? Code officials and PV solar installers.

Workshops • Sunday, May 3

Photovoltaic Markets, Technology, Cost, Performance with Emphasis on Building Integrated PV - PW17

Sunrise

8:30 am – 5:30 pm

Registration Price: $195.00, includes lunch

Presented by: *Paul Maycock, PV Energy Systems, Inc. and Steven Strong, Solar Design Associates*

This comprehensive course will provide historical perspective; present status and forecast the future for cell technology, performance and manufacturing cost; balance of systems performance and cost; systems design (stand alone to grid connected) with emphasis on the details of Building Integrated PV Systems; a detailed analysis of the world PV market including studies of Japan, Spain, the United States and Germany; and market forecast to 2015. Manufacturing cost for all options will be developed — all crystal silicon options, amorphous silicon (on glass and flexible), cadmium telluride, copper indium diselenide (on glass and flexible). Cost and efficiency for all options will be forecast to 2015.

Materials provided to attendees will include handouts of all quantitative market data, cost and performance status and forecast.

Who should attend? New hires in PV industry, marketing, technology of manufacture, installers, government policy makers in energy, investors, planners, students, architects builders

Earns AIA CEUs and HSW Credits

San Diego Tool Day — A Hands-On Building Performance Analysis Workshop - PW18

off-site

8:30 am – 5:30 pm

Registration Price: $85.00

Presented by: *Bruce Haglund, Department of Architecture, University of Idaho; Walter Grondzik, Ball State University; Alison Kwok, University of Oregon and Nick Rajkovich, Pacific Energy Center*

This intensive, hands-on, full-day Tool Day workshop offers architects, engineers, educators, students and design professionals experience in the use of relatively low-cost instrumentation and a structured methodology as a means to better understanding of building system and component performance. Participants will be taught appropriate use of such instrumentation and methods to increase confidence in their ability to address building performance concerns and will develop a mini-case study to use as a template for future investigations.

San Diego Tool Day at the University of California San Diego (UCSD) will delve into the newly completed, award-winning Student Academic Services Facility (SASF) designed by Rob Wellington Quigley, FAIA.

Materials provided to attendees will include a toolkit of handheld instruments for participants to use during the workshop and a workshop packet that will include a price list for the instruments, examples of tool exercises and plans for and a description of the subject building and its systems. Participants are encouraged to bring laptop computers and digital cameras. Attendance is limited to 30 to ensure participants an intense, hands-on experience.

Who should attend? Architects, building services and HVAC engineers, architecture and engineering faculty and students

Earns AIA CEUs and HSW Credits

Analytical Tools for LEED® - PW19

Garden Salon One

1:30 pm – 5:30 pm

Registration Price: $95.00

Presented by: *Vaibhav Potnis, Green Building Services, Inc.*

The design of high-performance buildings requires an extra level of effort on the part of the design team. To meet all the criteria for such buildings a project calls for advanced methods and tools for analysis and virtual prototyping before design decisions are made.

This workshop gives an overview of the different tools available to the design team, how they support the team's efforts to meet set criteria especially related to the LEED® rating system and give examples of some actual applications where these methods and technologies have been successfully applied.

The session will focus on tools related to

1. Whole building energy analysis – energy and Atmosphere category
2. Computational fluid dynamics (CFD) – thermal comfort and ventilation effectiveness credits
3. Daylight analysis – daylight and views credits, optimize energy performance credits

Materials provided to attendees will include hand-outs / CDs with resource weblinks and PDFs of presentations on CDs.

Who should attend? Architects, designers, engineers

Earns AIA CEUs and HSW Credits

Energize your Stint as a Guest Speaker - PW20

Sheffield

1:30 pm – 5:30 pm

Registration Price: $95.00

Presented by: *Tor Allen, The Rahus Institute – Solar Schoolhouse*

Have you been asked to visit a school and make a presentation? Not sure what to say or do? Participants in this workshop will learn techniques for energizing their presentations at local schools. Solar Schoolhouse, a Rahus Institute program, has developed a variety of energizing demonstrations and techniques for engaging students and sharing the magic of solar energy.

Developing a community connection through your local schools is good business. In addition to providing a much needed service, your school presentation can be a very effective marketing tool.

Materials provided to attendees will include *Your Solar Home Guidebook* and DVD and a mini-solar cell and kinetic & musical device – ie. Whirly gig.

Who should attend? All solar industry and solar advocates. Schools want guest speakers. Solar Energy is hot. Solar industry advocates are prime candidates for making presentations at schools.

A powerful tool in a home-owner's or business-owner's decision-making process to invest in a solar energy system is meeting people just like themselves, who have made the decision to go solar. That's why Conergy has made a commitment to support and grow the National Solar Tour.

Special Events

Please note: Some special events are included in your full conference registration, and some are not. You can buy additional tickets for friends and family for those events included in your full registration.

ASES Chapters Caucus

Town & Country

Saturday, May 3 • 8:30 am – 5:30 pm

For representatives of ASES Chapters and forming chapters, a networking and training program. Representatives are encouraged to bring brochures and newsletters to share.

NOT included in full conference registration

Price: $55.00

ASES Divisions Caucus

Royal Palm Three

Sunday, May 4 • 11:00 am – 5:00 pm

ASES Technical Divisions bring together members with similar interests in order to exchange information. The Divisions Caucus is a chance for Division Leaders to plan, exchange ideas, and network.

Conference Opening Reception

Terrace Pavilion

Sunday, May 4 • 8:30 pm

Come meet new friends, greet old ones, and enjoy the Southern California ambience by the pool at this food and cash bar reception.

INCLUDED in conference registration.

Sponsored by:

SCHÜCO

Women in Solar Luncheon

California

Monday, May 5 • 12:30 pm – 2:00 pm

Join us for a networking lunch after the Women in Solar Forum. Come and hear amazing women tell their amazing stories – and maybe tell one of your own! Featured speaker will be Alison Kwok, winner of the American Solar Energy Society's 2008 Women in Solar Award. Dr. Kwok is a gifted teacher of building physics and design studios at the University of Oregon where she has mentored students, especially women, to embrace the technical and cultural aspects of sustainable design.

NOT included in full conference registration

Price: $55.00

Awards Banquet Reception

Atlas Ballroom Foyer

Monday, May 5 • 6:00 pm – 7:00 pm

Enjoy a drink and an appetizer before the Awards Banquet.

Sponsored by:

Southwest Windpower
Renewable Energy Made Simple

Awards Banquet

Atlas Ballroom

Monday, May 5 • 7:00 pm – 10:00 pm

Join your colleagues and friends for the Annual Awards Banquet. A brief awards presentation will be followed by a special presentation by Randy Udall, one of the nation's leading activists in promoting energy sustainability.

INCLUDED in full conference registration

Extra Ticket Price: $65.00

Sponsored by:

THE NEW VALUE FRONTIER
KYOCERA

Pirate Party

Buses leave from west side of SOLAR 2008 registration lobby

Wednesday, May 7 • 6:30 pm – 10:00 pm

Join us for a swashbuckling good time! Your adventure begins with appetizers and cocktails (cash bar) aboard the HMS Surprise — a replica of an 18th century Royal Navy frigate — complete with pirate museum belowdecks. We'll then move for dinner to the Berkley — an 1898 steam ferryboat that operated for 60 years on San Francisco Bay. In addition, you can tour the B-39 — a Soviet diesel electric submarine commissioned in the early 1970s and the Maritime Museum on the lower decks of the Berkley. The adventure price includes transportation, dinner, entertainment and pirate accessories!

NOT included in full conference registration

Price: $80.00

Sponsored by:

CONERGY

Conference Closing Luncheon

Atlas Ballroom

Thursday, May 8 • 12:30 pm – 2:00 pm

Enjoy a special presentation by Bracken Hendricks, Senior Fellow at the Center for American Progress. Then we'll wrap up the conference with a few surprises and show you what we have in store for SOLAR 2009 – being held in Buffalo, New York in May, 2009.

INCLUDED in full conference registration

Extra ticket price: $65.00

Business Meetings

Saturday, May 3

8:30 am – 5:30 pm
ASES Chapters Caucus — Town & Country

Sunday, May 4

11:00 am – 5:00 pm
ASES Divisions Caucus — Royal Palm Three

12:00 pm – 5:00 pm
ASES Board of Trustees Meeting — Royal Palm Five

3:00 pm – 5:00 pm
Solar Decathlon Alumni Association Meeting — Garden Salon Two

Monday, May 5

7:00 am – 8:00 am
all meetings in California
ASES Education Committee
ASES Fundraising Committee
***SOLAR TODAY* Magazine Advisory Council**

4:00 pm – 5:00 pm
ASES Clean Energy and Water Division — Garden Salon Two
ASES Small Wind Division — Royal Palm One
ASES Solar Buildings Division — Royal Palm Three

5:00 pm – 6:00 pm
ASES SOLAR 2009 National Organizing Committee — Royal Palm Two

Tuesday, May 6

7:00 am – 8:00 am
all meetings in California
ASES Membership Committee
ASES Nominating Committee

12:30 pm – 2:00 pm
Society of Building Science Educators Annual Meeting — Garden Salon Two

12:45 pm – 1:45 pm
ASES Ethics and Members Concerns Committee — Royal Palm Five
ASES Renewable Fuels and Sustainable Transportation Division — Crescent
ASES Solar Thermal Division — San Diego

5:45 pm – 6:45 pm
ASES Meetings & Conferences Committee — Royal Palm Two
ASES Solar Electric Division — Royal Palm Three
ASES Sustainability Division — Sheffield

Wednesday, May 7

7:00 am – 8:00 am
ASES Policy Committee — California

12:45 pm – 2:00 pm
ASES Annual Meeting — Golden West

5:30 pm – 6:30 pm
ASES Resource Applications Division — Royal Palm One

Thursday, May 8

7:00 am – 8:00 am
all meetings in California
ASES Divisions Committee
ASES International Committee

3:00 pm – 6:00 pm
ASES Board of Directors Meeting — Windsor Rose

Friday, May 9

8:00 am – 3:00 pm
ASES Board of Directors Meeting — Windsor Rose

In 2000, the San Diego region had just 125 kilowatts of solar generation connected to the grid; today, that total is over 30 thousand kilowatts. We attribute this directly to community outreach the California Center for Sustainability has undertaken to promote going solar.

Solar Start-up and Solar Success! Training Events

For detailed descriptions, see pages noted

Monday, May 05, 2008	
Garden Salon One	
8:00 am to 5:00 pm	Residential Grid Tie PV System Design and Installation (page 22)

Tuesday, May 06, 2008	
Garden Salon One	
8:00 am to 12:00 pm	Selling Solar: Business Best Practices and Market Considerations (page 32)
1:00 to 4:30 pm	Cutting Through The Hype: Evaluating Technology to Optimize PV System Performance (page 32)
4:45 to 6:00 pm	Solar Success! Training Event Kick-Off

Wednesday, May 07, 2008				
	Hampton	Sheffield	Garden Salon Two	Garden Salon One
8:00 to 9:50 am	Photovoltaic Supplier TBA	Apollo Solar Off-Grid PV Power NABCEP Training (page 44)	Southwest Windpower (page 44)	Conergy Commercial Financing Program Selling Strategies (page 44)
10:00 to 11:50 am	Sanyo HIT Power Technology (page 44)		Course Flooded Lead-Acid Batteries in Off-Grid Applications (page 44)	Financing for your Residential Solar Projects (page 44)
1:00 to 2:50 pm	SatCon Commercial Central Inverters (page 48)	Fronius IG and Monitoring Solutions (page 48)	The Conergy SunTop PV Mounting System and Code-Compliant Sizing Tool (page 48)	State Rebate & Incentive Landscape (page 48)
3:00 to 4:50 pm	Fat Spaniel – Monitoring & Reporting Services (page 52)	OutBack Power Systems Product and Installation Overview (page 52)	Xantrex Grid Tie products – GT Series Grid Tie Solar Inverters – Single Phase, Three Phase (page 52)	Selling the Financial Payback for Grid-tie PV Systems (page 52)

Thursday, May 08, 2008				
	Hampton	Sheffield	Garden Salon Two	Garden Salon One
8:00 to 9:50 am	SMA Inverters - Residential Systems Design (page 56)	OutBack Power Systems Product and Installation Overview (page 56)	Solar Water Pumping Solutions – Real World Design and Applications (page 56)	Brand Building, Lead Generation and Customer Education with the ASES National Solar Tour (page 56)
10:00 to 11:50 am		Magnum Energy: Our Products, Applications and Feature Benefits (page 60)	UniRac Solutions: From Basic Racking, Attachment Alternatives and Code Compliance to Quoting and Estimating (page 60)	Solar Industry Outlook: Market, Technology and Supply (page 60)
1:00 to 2:50 pm	Sanyo HIT Double (Bifacial) Technology (page 60)	The Evolution of PV Module Grounding, Wiring, and Site Evaluation: An Introduction (page 60)	Xantrex Off-Grid Products – XW Series, Trace Series, DR Series (page 62)	The Art of Integrated Event Marketing - Maximizing your Investment (page 62)
3:00 to 4:50 pm	MidNite BOS products and the Classic (page 62)	Fronius IG and Monitoring Solutions (page 62)	New Commercial-Scale Mounting System Solutions (page 62)	Customer and Job Management: Generate Estimates, Analysis and Proposals…in Minutes! (page 62)

Solar Success! for Start-ups

Monday, May 5

Monday

8:00 am – 5:00 pm

Residential Grid Tie PV System Design and Installation

Garden Salon One

Presenters: Phil Undercuffler, Conergy Director, Battery Based / Off-grid & Dan Rice, Conergy Applications Engineer - Commercial Grid Tie

Get up to speed fast with Conergy's one-day Residential Grid Tie PV System Design and Installation course. You will learn component basics, effective site analysis for accurate system design and job costing, NEC requirements specific to photovoltaic systems, and best practices for system installation, wiring and commissioning. This training is targeted to the knowledgeable technical professional, and is appropriate for electrical contractors, journeyman electricians, and recent entrants into the solar industry who want to improve their skills and knowledge.

Dealer/Installer Trainings

8:00 am – 12:00 pm

Fronius IG/DatCom NABCEP Training

Royal Palm Five

Fronius is offering 2 half day (4-hour) courses that will cover various topics including Fronius inverter technology, data communications, installation procedures, trouble shooting, system design, and more. Attendees will also receive a workbook, a CD loaded with information and programs, and a certificate of completion. In addition, the class has been certified for continuing education credit from the National Association of Board-Certified Energy Practitioners (NABCEP).

8:30 am – 11:30 am

KACO Grid-Tied Inverter Training

Royal Palm Two

KACO Solar, Inc. will offer partners and other solar enthusiasts a focused and NABCEP approved training. The course objective is to provide a more enhanced knowledge of how to work with grid-tied inverters and especially the KACO blueplanet line, communication options and updates on cutting edge inverter technologies.

8:30 am – 4:30 pm

Intro to Solar Water Heating

Le Chanticleer

An introduction for installers and dealers on solar heating and how Viessmann products meet your solar water heating needs.

9:00 am – 4:00 pm

Fat Spaniel System Installation

Royal Palm Four

This Fat Spaniel session is for system installers, operations and support staff. Instruction will be in a instructor-led format with hands-on labs to reinforce technical learning. The goal of this course is to develop knowledge and skills to properly and efficiently install a Fat Spaniel monitoring solution. Pre-registration is required.

Conference Sessions

Sunday, May 4

11:00 am – 5:00 pm

ASES Divisions Caucus
Royal Palm Three

ASES Technical Divisions bring together members with similar interests in order to exchange information. The Divisions Caucus is a chance for Division Leaders to plan, exchange ideas, and network.

12:00 pm – 5:00 pm

ASES Board of Trustees Meeting
Royal Palm Five

3:00 pm – 5:00 pm

Solar Decathlon Alumni Association Meeting
Garden Salon Two

The Solar Decathlon is a competition in which 20 teams of college and university students compete to design, build, and operate the most attractive, effective, and energy-efficient solar-powered house. The Solar Decathlon is also an event to which the public is invited to observe the powerful combination of solar energy, energy efficiency, and the best in home design. The event takes place on the National Mall in Washington, D.C., every two years. All Solar Decathlon participants, including students, faculty, and sponsors are invited to participate in the Solar Decathlon Alumni Association. This is the second working group meeting of the association.

6:30 pm

Sponsored by

U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

Conference Opening Plenary
Atlas Ballroom

Moderator: Margot McDonald, SOLAR 2008 Conference Chair

- Donna Frye, San Diego City Councilmember
- Irene M. Stillings, Executive Director, California Center for Sustainable Energy
- John Reynolds, Chair, American Solar Energy Society
- Tony Haymet, Director, Scripps Institution of Oceanography
- Molly Tirpak Sterkel, Supervisor, California Solar Initiative and Distributed Generation Section, California Public Utilities Commission

8:30 pm

Sponsored by

SCHÜCO

Conference Opening Reception
Terrace Pavilion

Come meet new friends, greet old ones, and enjoy the Southern California ambience by the pool at this food and cash bar reception.

INCLUDED in conference registration

Monday, May 5

7:00 am – 8:00 am

Speakers' Breakfast & Business Meetings
California

- ASES Education Committee
- ASES Fundraising Committee
- *SOLAR TODAY* magazine Advisory Council

7:30 am – 5:00 pm

SOLAR 2008 Registration Open
Atlas Ballroom Foyer

8:30 am – 10:00 am

PLENARY

Policy and Marketing Solutions
Atlas Ballroom

Moderator: Brad Collins, American Solar Energy Society

Renewable energy is taking off. With this success comes the need for smart policies and market sustainability. We have a line-up of dynamic speakers that will make this plenary session one you will remember as some of the hard issues and innovative strategies are discussed.

- Michael Dworkin, Director of the Institute for Energy and the Environment and Professor of Law, Vermont School of Law
- Senatory Gary Hart, Scholar in Residence at the University of Colorado and Distinguished Fellow at the New America Foundation
- Van Jones, Founding President, Green for All

Dealer/Installer Trainings

Monday, May 5

Monday

10:00 am – 11:00 am

Battery Maintenance and Technology Overview

Windsor

A comprehensive overview of how a deep cycle battery works, related technological information and key maintenance guidelines for optimum upkeep. Will also include a Trojan Battery product update and a Q&A Session.

10:30 am – 12:30 pm

Introduction to Ready Solar's Pre-Assembled PV Systems — Install Faster & Look Good with Solar in a Box®

Windsor Rose

Learn how to install a complete, pre-assembled residential PV system in half the time as with traditional components. It's great looking, so you'll look good, too! Participate in a hands-on installation training. Sign up to become a reseller partner. Lunch will be served. Pre-registration is required.

The ASES Report *Renewable Energy and Energy Efficiency: Economic Drivers for the 21st Century* predicts that by the year 2030, the renewable energy and energy efficiency industries could create as many as 40 million U.S. jobs and $4.5 billion in revenue.

Monday, May 5

10:00 am – 5:00 pm

Exhibit Hall Open

Don't miss your opportunity to visit the Exhibit Hall. Hall is open today and tomorrow only!

11:00 am – 12:30 pm

Green Business Practices in Action

Garden Salon Two

Moderator: Claudia Wentworth, President, Quick Mount PV

In this session, each speaker will focus on their company's environmentally responsible and cost efficient best practices to help form a better understanding of their implementation in any business. We will touch on the psychological motivation of environmentally responsible decision making and implementation on employees, as well as the cost effectiveness of these practices to help business managers build a case to motivate a change to green business practices in their companies.

Speakers include:

- Tom Thornhill, Mendocino Wine Company/Parducci Wine Cellars
- Cheri Chastain, Sustainability Coordinator, Sierra Nevada Brewing Co.
- Bruce Lymburn, Lead Council for Clif Bar, Wendel Rosen Black and Dean LLP

Growing the Renewable Energy Workforce — A Review of National and State Resources and Actions

Hampton

Moderator: Barbara Martin, Instructional Design Consultant

Significant growth in the renewable energy market sectors leads to jobs in manufacturing and distribution, design and engineering, sales and marketing, and installation and service as well as other building trades such as electricians, plumbers, and roofers. Along with the growth and new jobs comes the increasing demand for quality training. This session looks at some of the teaching practices and educational models that are underway around the country and discusses national and state resources and actions.

Presentations include:

- *Trends in Workforce Education & Development*
  Jane Weissman, Interstate Renewable Energy Council
- *Environmental and Sustainable Energy Workforce Development Opportunities*
  Todd Trammell, Advanced Technology Environmental and Energy Center
- *U.S. Department of Energy's Solar America Initiative — Solar Workforce Development*
  Katie Bolcar, Solar Energy Technologies Program, Energy Efficiency and Renewable Energy, U.S. Department of Energy
- *Community Colleges as Catalyst for Economic Growth — The Hudson Valley Community College Case Study*
  Joe Sarubbi, Hudson Valley Community College

Passive Energy Preferred (PEP)

Sheffield

Moderator: Harold R. Hay, H.R. and E.J. Hay, Charitable Trust

Media attention to renewable energy (RE) results from the abundance of research funds, demonstrations, subsidies, and legislation favoring active solar electricity. Passive energy (PE) for comfort heating and cooling, water heating and desalination receives negligible government funding and national press coverage. PE use can immediately relieve resource depletion, pollution, and climate change crises. RE requires many additional years of research and implementation to economically meet a minor part of the growing energy use.

Speakers include:

- Steve Baer, Zomeworks Corporation
- Harvey Bryan, Arizona State University, School of Architecture
- Bruce Haglund, University of Idaho

Women in Solar Forum

Golden West

Moderator: Marlene Brown, President, New Mexico Solar Energy Association

Calling all you women in solar! This year's "Women in Solar" Forum will highlight amazing women from California and listen to their successes in solar. Are you working in the solar industry or interested in getting started? California has the most aggressive incentives for solar and there are endless accomplishments to highlight. There are also many women working in the solar industry who have helped make this happen.

Speakers include:

- Irene M. Stillings, Executive Director, California Center for Sustainable Energy
- Elaine Hebert, Northern California Solar Energy Association and California Energy Commission
- Susan Munves, Energy and Green Building Program Administrator, City of Santa Monica
- Kelly Larson, NAPCEP Certified Solar PV Installer

PV System Modeling Technical Session

Crescent

Session Chair: Luis Estrada, New Mexico State University

Modeling Photovoltaic and Concentrating Solar Power Trough Performance, Cost and Financing with Solar Advisor Model
N. Blair, M. Mehos and C. Christensen, National Renewable Energy Laboratory and C. Cameron, Sandia National Laboratory

Estimating the Solar Access of Typical Residential Rooftop — A Case Study in San Jose, CA
R. Levinson, Lawrence Berkeley National Laboratory; S. Gupta, California Energy Commission and H. Akbari, Lawrence Berkeley National Laboratory

Grounding and Bonding of Large Roof-Mounted Photovoltaic Systems
J. Mead, SunLink Corporation

Computer Simulation of Current Density for pn Silicon Solar Cell with Depletion Layer Forward Voltage Dependence
F. EL Fituri, University of Omar EL-Mukhtar, Libyan Arab Jamahiria and A. Kalma, University of Garyounis, Libyan Arab Jamahiria

Join
the American Solar Energy Society

Your support helps lead the renewable energy revolution and earns you an annual subscription to the award-winning magazine *SOLAR TODAY.*

AMERICAN SOLAR ENERGY SOCIETY

American Solar Energy Society is the nonprofit organization dedicated to increasing the use of solar energy, energy efficiency, and other sustainable technologies. Established in 1954, ASES is now supported by thousands of members across the nation. Together, we're leading the renewable energy revolution.

Your membership earns you an annual subscription to the award-winning magazine, *SOLAR TODAY*, and strengthens the national voice in support of solar energy. Add your voice. Reap the benefits. Learn more and join us online at:

www.ases.org

Monday, May 5

11:00 am – 12:30 pm *(continued)*

New Transitional Developments in Policies and Programs Technical Session

Royal Palm One

Session Chair: Susan Gouchoe, NC Solar Center

Solar Market Transition in New Jersey — Promise and Progress for Sustained Growth
D. Hill and L. Barth, Vermont Energy Investment Corporation

The Development of Interconnection Standards in Six States in 2007–2008
J. Keyes, Wilson Sonsini Goodrich & Rosati

Building Clean Energy Businesses in New York
V. Colello, NYSERDA; D. Wolfe, groSolar; and C. Moustakis, Solar Energy Systems

Kindling a Market Transformation for Energy Efficiency + Solar
B. Baccei and R. Hammon, ConSol/BIRA

Barriers and Breakthroughs for Multi-Tenant Buildings
C. Carmichael, C. Fluhrer and E. Bonnett, Rocky Mountain Institute

Design that Responds to Place Technical Session

Royal Palm Three

Session Chair: Marc Schiler, University of Southern California Los Angeles

The Process of Defining a Sustainable Aesthetic
D. Douglass and M. Schiler, University of Southern California

The City of San Diego's Sustainable Building Expedite Program
S. Whitley, Sundance Technology

Posturbanism — An Empirical Analysis of Urban Multi-Nodal Model for Northeast Ohio
A. Sharag-Eldin, Kent State University and A. Sharag-Eldin, Senior Planner and B. Davis, Senior Environmental/Air Quality Planner

Using ENVI-met Simulation as a Tool to Optimize Downtown Phoenix's Urban Form for Pedestrian Comfort
A. Rosheidat, D. Hoffman and H. Bryan, Arizona State University

Dealer/Installer Trainings

Monday, May 5

Monday

1:30 pm – 5:00 pm

Apollo Solar Off-Grid PV Power NABCEP Training

Royal Palm Five

This training covers the Apollo Solar PV product line of off-grid pure-sinewave split-phase inverters, MPPT charge controllers, wireless remote data monitors, and installation-ready plug-and-play wiring enclosures. The class is certified for continuing education credit from the North American Board of Certified Energy Practitioners (NABCEP).

4:00 pm – 5:30 pm

Launch & Grow Your Solar Business

Windsor

Learn the key elements needed for success in this fast paced industry. Numerous tips, hints, and informational resources from a pioneer in the Renewable Energy Industry.

4:00 pm – 6:00 pm

Solar Advisor Model Introductory Training

Crescent

This meeting will serve to introduce attendees to the capabilities and usage of the Solar Advisor Model (SAM), a product of NREL, Sandia and the U.S. DOE Solar Program. The tool is freely available at http://www.nrel.gov/analysis/sam. SAM is able to evaluate the value of PV and parabolic trough CSP systems by including a detailed hourly performance model, detailed financing options for various markets (residential to utility scale) and interaction with various cost-models. The model appeals to industry and lab researchers. SAM produces levelized cost of energy values that can be compared across geography and subject to various cost inputs.

Many of AEE Solar's employees live in solar-powered homes, and the company is headquartered in a solar-heated building with a 6 kW PV system.

Monday, May 5

12:30 pm – 2:00 pm

Women in Solar Luncheon — California

Join us for a networking lunch after the Women in Solar Forum. Come and hear amazing women tell their amazing stories — and maybe tell one of your own! Featured speaker will be Alison Kwok, winner of the American Solar Energy Society's 2008 Women in Solar Award. Dr. Kwok is a gifted teacher of building physics and design studios at the University of Oregon where she has mentored students, especially women, to embrace the technical and cultural aspects of sustainable design.

NOT included in full conference registration

Price $55.00

2:00 pm – 3:30 pm

Beyond the Sale — Creative Uses of Solar Installation Data — Sheffield

Moderator: Liz Merry, Verve Enterprises

Now that there is a critical mass of PV systems installed it is increasingly clear that post-consumer information, including system installation data, consumer reviews, and production data is extremely valuable. Yet, this "end of the trail" information is rarely made available and is lowest on the priority list when designing new solar incentive programs. Learn how several remarkable projects have used solar installation and consumer feedback information to transform the PV marketplace.

Presentations include:

- *Unlocking Solar Incentive Program Data with Fleet-Wide Analysis, Simulation and Reporting*
  Jeff Ressler, Clean Power Research
- *Empowering Solar Initiatives with Installation Data*
  Liz Merry, Verve Solar Consulting
- *The Many Faces of DSIRE*
  Susan Gouchoe, NC Solar Center
- *Solar Mapping and Advancing with Utilities*
  Steph Stoppenhagen, CH_2M Hill

Federal, State, and Local Incentive Programs — Hampton

Moderator: Adam Browning, Executive Director, Vote Solar

Despite continued advances in solar technology and vast market potential, solar electric generation remains a relatively small fraction of the United States' total energy mix due in part to the fluctuating state of renewable portfolio standards, regulatory and incentive inconsistency and the challenges of operating in what continues to be a highly fractionalized marketplace. Join three solar policy experts from the private sector as they discuss the government incentives that continue to shape the renewable energy marketplace. They will speak to the importance of incentives in creating green collar jobs and accelerating solar adoption across the U.S.

Speakers include:

- David Hochschild, VP of External Relations, Solaria Corporation
- David Kopans, Director of Regulatory Affairs, Fat Spaniel Technologies
- Mark McLanahan, VP of Marketing and Strategy, MMA Renewable Ventures

Tackling Climate Change with Renewable Energy and Efficiency — Golden West

In January 2007, ASES released its landmark 200-page report, *Tackling Climate Change in the U.S.*, which describes how energy efficiency and renewable energy can drastically reduce U.S. carbon emissions (see www.ases.org/climatechange). Dr. Chuck Kutscher, who chaired the SOLAR 2006 conference and led the effort to produce that report, has given a highly popular presentation on this subject at conferences around the country. In this special session, he will describe how the latest scientific data has underscored the urgency of addressing climate change, and he will show the potential for efficiency and renewables to address it. His presentation will be followed by a question-and-answer period and a general audience discussion of what the renewable energy community can do to help solve what many have called the greatest technological challenge of our time.

PV System Performance Technical Session — Crescent

Session Chair: Jeff Lyng, Colorado Governor's Energy Office

California Self-Generation Incentive Program — Measured 2006 PV Performance
G. Simons, K. Scheuermann, H. Ochsner, M. O'Kelly and A. Khursheed, Itron, Inc. and B. Wilkins, California Public Utilities Commission

Performance Assessment of 2 MW of Photovoltaic Projects Operating in the City and County of San Francisco
L. Mitchell, P. Bonitz and J. Doyle, San Francisco Public Utilities Commission

Cal Poly Sustainable Power for Electrical Resources (SuPER) Project
J. Harris and A. Shaban, Cal Poly; T. Sheffield, ViaSat and E. Tal, NVIDIA

Renewable Energy Standards and the Story Behind the Project — Delivery and Performance of a One Megawatt PV Array at the Denver Federal Center
D. Porter, General Services Administration and O. Van Geet, National Renewable Energy Laboratory

A Four Years Performance Study of the 5 kWp Photovoltaic Systems Connected to the Utility Grid of Thailand
N. Watjanatepin and C. Boonmee, Rajamangala University of Technology Suvarnabhumi, Thailand

Innovative Utility Programs Technical Session — Royal Palm One

Session Chair: Larry Sherwood, Sherwood and Associates

The Future Grid-Tied PV Business Models — What Will Happen When PV Penetration on the Distribution Grid is Significant?
S. Graham, R. Katofsky, L. Frantzis, and H. Sawyer, Navigant Consulting, Inc.

Analysis of Duke's Save-a-Watt Proposal for Utility Energy Efficiency
R. Day and I. Urlaub, North Carolina Sustainable Energy Association

San Diego Smart Energy 2020 — 50 Percent Greenhouse Gas Reduction by 2020
B. Powers, Powers Engineering

Assessing the Strategic Value of Solar Water Heating to Electric Utilities
J. Bourg, Millennium Energy, LLC; J. Cliburn, Cliburn and Associates, LLC and C. Robertson, Chris Robertson & Associates, LLC

Is PAYS® the Answer to Financing Solar Water Heating Systems?
W. Bollmeier, Hawaii Renewable Energy Alliance; H. Lachman, Energy Efficiency Institute, United Kingdom; and H. Morita, Hawaii State Capitol

Monday, May 5

2:00 pm – 3:30 pm *(continued)*

Shining the Light on Daylight Delivery Technical Session

Royal Palm Three

Session Chair: Harvey Bryan, Arizona State University School of Architecture

Daylight (re)Visualizations For Spatial (re)Configurations — Tracking Illuminance Levels in the Life of an Early 20th Century Residential Apartment
G. Thomson, University of Wisconsin - Milwaukee

Natural Daylight in Classrooms Using Measured and Simulation Data
D. Ogoli, Judson University

Effects of Window Size in Daylighting and Energy Performance in Buildings
J. Melendo, University of Seville, Spain and P. La Roche, Cal Poly Pomona

Development of a Multiple Film Based Daylight Control System
V. Garg, D. Shiralkar and K. Rao, International Institute of Information Technology-Hyderabad, India

Evaluating Total Daylight Window Energy Performance Early in the Design Process and the Visualization of the Resultant Luminous Environment
B. Futrell, University of North Carolina - Charlotte

A Method for Analysis of Lighting Environments Using High Dynamic Range Imaging
S. Bhave, The Weidt Group

4:00 pm – 5:00 pm

ASES Division Meetings

ASES Clean Energy and Water Division — **Garden Salon Two**
ASES Small Wind Division — **Royal Palm One**
ASES Solar Buildings Division — **Royal Palm Three**

5:00 pm – 6:00 pm

Business Meeting

ASES SOLAR 2009 National Organizing Committee
Royal Palm Two

6:00 pm – 7:00 pm

Sponsored by
Southwest Windpower
Renewable Energy Made Simple

Awards Banquet Reception

Atlas Ballroom Foyer

Enjoy a drink and an appetizer before the Awards Banquet.

7:00 pm – 10:00 pm

Sponsored by
The New Value Frontier
KYOCERA

Awards Banquet

Atlas Ballroom

Join your colleagues and friends for the Annual Awards Banquet. A brief awards presentation will be followed by a special presentation by Randy Udall, one of the nation's leading activists in promoting energy sustainability.

INCLUDED in full conference registration

Extra Ticket Price: $65.00

Monday

In 2006, Kyocera set an18.5% energy conversion efficiency for a 15cm x 15cm multicrystalline silicon solar cell.

Solar Success! for Start-ups

Tuesday, May 6

8:00 am –12:00 pm

Selling Solar — Business Best Practices and Market Considerations

Garden Salon One

Presenter: John Marcarelli, Conergy Director, Residential Grid-Tie Sales

Prepare your business for the rapidly growing solar industry. This course focuses on key factors that will drive the business plan: understanding the federal and state incentives, financial and operational considerations, defining the customer base and crafting a winning sales plan. Attendees will gain an understanding of the various market considerations and learn basic system design through case study analysis to prepare for quoting, sales and long range planning.

Dealer/Installer Trainings

Tuesday

8:00 am – 12:00 pm

Fronius IG/DatCom NABCEP Training

Royal Palm Five

Fronius is offering 2 half day (4-hour) courses that will cover various topics including Fronius inverter technology, data communications, installation procedures, trouble shooting, system design, and more. Attendees will also receive a workbook, a CD loaded with information and programs, and a certificate of completion. In addition, the class has been certified for continuing education credit from the National Association of Board-Certified Energy Practitioners (NABCEP).

8:30 am – 11:00 am

PV and the 2008 National Electrical Code

Windsor Rose

This session will delve into the National Electrical Code changes between the 2005 and 2008 editions related to the PV and renewable energy industry. It will also provide insight into the reasoning behind these changes and the changes coming in 2011 in the PV and renewable industries.

9:00 am – 1:00 pm

Solectria Renewables PV Inverter Training (for residential & commercial applications)

Royal Palm Two

Training will include:

- Complete residential and commercial technical inverter training covering 1.8, 2.5, 13, 15, 60, 82, and 95 kW units presented by Solectria Renewables' CEO, James Worden
- Q&A to answer your specific questions on inverters and systems
- For PV solar contractors, installers, designers, engineers, consultants, architects, and system integrators
- NABCEP Continuation credit available (4 points)

9:00 am – 4:00 pm

Fat Spaniel System Installation

Royal Palm Four

This Fat Spaniel session is for system installers and operations and support staff. Instruction will be in a instructor-led format with hands on labs to reinforce technical learning. The goal of this course is to develop knowledge and skills to properly and efficiently install a Fat Spaniel monitoring solution.

11:00 am – 2:00 pm

Stand Alone with Phocos

Windsor

Hands-on training for designing Stand-Alone PV systems using Phocos' innovative line of solar charge controllers, system management units and DC Accessories. Invitation only please.

Tuesday, May 6

7:00 am – 8:00 am

Speakers' Breakfast
California

Business Meetings
California

ASES Membership Committee
ASES Nominating Committee

7:30 am – 7:00 pm

SOLAR 2008 Registration Open
Atlas Ballroom Foyer

8:30 am – 10:00 am

PLENARY
Renewable Energy Technology Solutions
Atlas Ballroom

Moderator: Richard Perez, ASRC, University of New York at Albany

Presentation of the AES Hottel Award.

Speakers will provide an overview of the current state of the industry, and their vision for where the industry will be in 20 years.

- Jigar Shah, Chief Strategy Officer, SunEdison
- Chuck Kutscher, Principal Engineer and Manager of the Thermal Systems Group, National Renewable Energy Laboratory
- Ed DeMeo, President, Renewable Energy Consulting Services, Inc.
- Craig Cornelius, Principal, Hudson Clean Energy Partners

10:00 am – 4:00 pm

Exhibit Hall Open
Don't miss your opportunity to visit the Exhibit Hall. Hall closes for good at 4:00 pm TODAY!

11:00 am – 12:30 pm

Attracting Solar Home Buyers
Sheffield

Moderator: Claudia Chandler, California Energy Commission

In today's challenging housing market, builders must identify ways to attract buyers and differentiate themselves from the competition. As homebuyers begin to demand more green technologies in their homes, solar panels, much like granite countertops ten years ago, will evolve from being a luxury item into an expected standard feature in new homes throughout the U.S. With state and federal incentives helping to offset costs, solar panels are becoming an affordable and standard feature in many new California communities. This session will address how solar is changing the face of the Golden State's housing market.

Speakers include:

- David Blanke, New Construction Manger, Environmental Design Programs, SDG&E
- Bill Kelly, SunPower Corporation
- Mark Fischer, CFO/SVP, The Grupe Company
- Jennie Stabile, President, K Street East LLC

Growing the Small Wind Workforce for Today's Economy
Royal Palm One

Educational Opportunities for Building Small Wind into Your Career or Business

Moderator: Megan Amsler, Executive Director, Cape & Islands Self-Reliance Corporation

Small wind has great growth potential, however, getting up the learning curve is essential and somewhat difficult if you are not familiar with the educational opportunities and the multitude of issues you need to be prepared to address in order to grow the market successfully. Finding places to learn about small wind and get hands-on exposure to the technology can be a daunting task. This forum will offer presentations from some of the leaders in the small wind educational field.

Speakers include:

- Richard Lawrence, Clean Energy Program Coordinator, Cape Cod Community College
- Tim Sanderson, Wind Energy Instructor, Minnesota West Community College
- Brent Summerville, Project Manager, North Carolina Wind Energy Center, Appalachian State University
- Jenny Eigenberger, Wind Program Director, Lakeshore Technical College

Renewable Electricity 24/7
Hampton

Moderator: John Reynolds, Prof. Emeritus, Architecture, University of Oregon

Renewable-sourced electricity is available every hour of every day, even in the dark and in winter. Although one of our best known renewable sources, PV, is a daytime only source and wind is highly variable, there are other renewable electricity sources that produce 24 hours a day, 7 days a week. Experts on biomass, geothermal and ocean wave energy will compare their energy sources with PV, and invite audience response.

Speakers include:

- John W. Lund, PE, Director of the Geo-Heat Center, Professor Emeritus of Civil Engineering, Geo-Heat Center, Oregon Institute of Technology
- Rainer Aringhoff, President, Solar Millennium LLC
- David Eveland, Graduate Student, Wallace Energy Systems & Renewables Program, Oregon State University
- Peter Sawicki, Business Development Manager, Marubeni Sustainable Energy, Inc.

Solar Access Laws
Golden West

Moderator: Larry Sherwood, Sherwood Associates

As solar energy systems are installed in record numbers in the U.S., how can the owners of those systems ensure that their access to the sun is protected from present or future impairment? This session will discuss existing solar access and solar rights laws, give some exemplary examples, and present proposed federal legislation.

Speakers include:

- *Existing Solar Access and Solar Rights Laws*
  Colleen Kettles, Florida Solar Energy Research and Education Foundation
- *California Solar Access and Solar Rights Laws*
  Scott Anders, Energy Policy Initiatives Center, University of San Diego School of Law
- *Proposed Federal Legislation*
  John Stanton, Solar Energy Industries Association

Tuesday, May 6

11:00 am – 12:30 pm *(continued)*

Solar Water Heating — Installation Issues

San Diego

Moderators: Alison Mason, SunJuice and Mark Thornbloom, Viessman

Do you have questions about which technologies are preferred by installers? Do you wonder what techniques and products your competition favors? If so, this forum is for you. Please come and participate in a lively discussion of installation topics with a panel of experienced installers.

Panelists include:

Justin Weil, Sunwater Solar Inc
David Smith, Solar Energy, Inc.
Tom Lane, ECS Solar Energy Systems, Inc
Jake Tornatzky, Solar City
Hal Slater, Solartistry, Inc.
William T. Guiney, Johnson Controls, Inc.
Brett Butler, Butler Sun Solutions

Improving PV Performance Technical Session

Royal Palm Three

Session Chair: Thomas Diskin, San Mateo County Community College

Passive Cooling of Rooftop Integrated Photovoltaics
G. Mittelman, A. Alshare and J. Davidson, University of Minnesota

Performance of PV Inverters
F. Vignola, University of Oregon; F. Mavromatakis, Technical Educational Institute of Crete, Greece and J. Krumsick, Alternate Energy Consortium

Smart Mechanical Sun Tracking System
M. Serhan and L. Chaar, The Petroleum Institite, United Arab Emirates

Carousel Trackers with 1-Sun or 3-Sun Modules for Commercial Building Rooftops
L. Fraas, J. Avery, L. Minkin and H. Huang, JX Crystals Inc. and A. Gehl and C. Maxey, Oak Ridge National Lab

Green Fuels and Sustainable Mobility Technical Session

Crescent

Session Chair: Steven Heckeroth, ASES Renewable Fuels and Sustainable Transportation Division

Solar Powered Personal Rapid Transit (PRT) — Electric Vehicles without Batteries or Congestion
R. Baertsch, University of California Santa Cruz and R. Swenson, Solarquest

Solar Electric and Human Pedal Powered Zero Emission Vehicles
D. Robinson, N. Mitten and H. Ingley, University of Florida

Solar Concentrator Options for a Thermochemical Hydrogen Production Process
R. Taylor and R. Davenport, Science Applications International Corp. and A. T-Raissi, University of Central Florida

A New Family of Solar Metal Sulfate — Ammonia Based Thermochemical Water Splitting Cycles for H_2 Production
C. Huang, A. T-Raissi, S. Fenton and N. Muradov, University of Central Florida, Florida Solar Energy Center; L. Mao, Henan University, China

Case Studies — The Built Environment Technical Session

Garden Salon Two

Session Chair: Dennis Andrejko, State University of New York at Buffalo

Roddy/Bale Green Roof Study
A. Kwok, University of Oregon and W. Grondzik, Ball State University

Beth David Synagogue, a High Performance Public Green Building in San Luis Obispo, CA
K. Haggard, P. Cooper and R. Beller, San Luis Sustainability Group and L. Cohn, M. Blum and P. Wolff, Congregation Beth David

The Blue Ridge Parkway Visitor Centre — Correlating Building Simulation with Measured Performance in Passive Solar Design
V. Sami and T. Butler, Lord Aeck Sargent Inc. and M. Erwin, Georgia Institute of Technology

Aesthetic Implications at the 2007 Solar Decathlon
D. Douglass and M. Schiler, University of Southern California

An Indo-American Venture — Building an Energy Efficient House in Kerala, India with the Center of Science and Technology for Rural Development (COSTFORD) Using Indigenous Knowledge and Appropriate Technology, Part I
M. Kindred, COSTFORD Thiruvananthapuram Centre, India

Solar Success! for Start-ups

Tuesday, May 6

1:00 pm – 4:00 pm

Cutting through the Hype — Evaluating Technology to Optimize PV System Performance

Garden Salon One

Presenter: Bill Brooks, Solar America Board of Codes and Standards/Brooks Engineering

Bill Brooks offers an independent view of the world of solar electric products and technology for installers and system designers. Bill's expertise and no nonsense approach will help you overcome issues faced in the field that could cause degraded performance and unhappy customers. His field troubleshooting skills have been valuable in determining where problems occur to focus training on those issues of greatest need. His experience includes work on technical committees for the National Electrical Code, Article 690, and IEEE utility interconnection standards for PV systems. Whether you are new to solar or a seasoned veteran, we're sure you'll find this a valuable, not-to-be-missed presentation. NABCEP certified 4 CEUs.

Tuesday

Dealer/Installer Training

1:30 pm – 5:00 pm

Apollo Solar Off-Grid PV Power NABCEP Training

Royal Palm Two

This training covers the Apollo Solar PV product line of off-grid pure-sinewave split-phase inverters, MPPT charge controllers, wireless remote data monitors, and installation-ready plug-and-play wiring enclosures. The class is certified for continuing education credit from the North American Board of Certified Energy Practitioners (NABCEP).

Tuesday, May 6

12:30 pm – 2:00 pm

Poster Session I

Town & Country

Session Chair: Marlene Brown, New Mexico Solar Energy Association

Solar Thermal

Comprehensive Modeling on the Integral Collection Storage Unit Demonstrated in a Zero Energy House
D. Correia, R. Hunt and R. Boehm, University of Nevada, Las Vegas and L. Zhu, Tianjin University, People's Republic of China

Numerical Investigation of Influences of an Aerowindow on the Performance of Solid Particle Receivers
T. Tan, Y. Chen and Z. Chen, University of Nevada, Las Vegas

Concentrating Solar Power

Architectural Active Solar Energy Reflector Collector Studies
J. Goodman, Consultant

Versatile Two-Axis Open-Loop Solar Tracker Controller
C. Ward, L. Maxey, B. Evans and M. Lapsa, Oak Ridge National Laboratory

Photovoltaics

Economic Evaluation of Photovoltaic Pumping Systems with V Type Concentrators in Productive Horticultural Chains
J. Melo Filho, N. Fraidenraich and O. Vilela, Universidade Federal de Pernambuco, Brazil

Effect of MgO-coated TiO_2 Nanotubes in Dye-sensitized Solar Cells
K. Mun and W. Choi, Kangnung National University, Republic of Korea; H. Park, D. Yang and S. Cho, Korea Advanced Institute of Science and Technology, Republic of Korea

Modeling a High Concentration Photovoltaic System
A. Sahm, K. Stone, R. Boehm and A. Gray, University of Nevada, Las Vegas

Operational Results of Russian-Built Photovoltaic Alternative Energy Powered Lighthouses in Extreme Climates
L. Estrada, A. Rosenthal and R. Foster, Institute for Energy & Environment, New Mexico State University; A. Grigoriev and A. Khoudykin, Kurchatov Institute, Russian Federation and G. Hauser, Sandia National Laboratories

Hydrogen and Other Fuels

A Solar Powered Hydrogen Generation and Filling Station
M. Campbell, R. Hurt, S. Sadineni and R. Boehm, University of Nevada, Las Vegas

Kinetics of the Decomposition of Cu_2OCl_2 (Melanothallite) — The High Temperature Step in the Copper Chloride Thermochemical Water Splitting Cycle
R. Rennels, University of Nevada, Las Vegas

Other Renewable Energy Systems

Experimental Analysis of Personalized Partition Air Sterilization System
K. Jeong and S. Choi, Yuhan College, Republic of Korea

Poster Session II

Golden West

Session Chair: Becky Campbell-Howe, American Solar Energy Society

Sustainability

Campus Sustainability Vision and Plan
J. Stuart, Oregon Institute of Technology

Rapid Contour Crafting to Create More Sustainable Housing
L. Haymond and D. Noble, University of Southern California

Building Design and Daylighting

North V. South — The Impact of Orientation in Daylighting School Classrooms
J. Theodorson, Washington State University Spokane

Passive Solar — Thermal Comfort Through Shade and Thermal Mass
C. Gavina, Cal Poly Pomona

Passive Solar Architecture for Non-Architectural Masters Students
R. Berkowitz, P. La Roche and A. Herndon, Cal Poly Pomona

Energy Analyses

A Software Tool for Climate Analysis, CLIMA
L. Rodriguez, La Universidad del Zulia, Venezuela

Caught on the Rise — a Study of the Economic & Energy Waste Created by Escalators
S. Oaks, S. Thomas, K. Chao and G. Rommes, University of Oregon

Glass Dominated Buildings in Hot and Arid Climate — An Energy Analysis Model of a 'Climatologically Sealed' Building in Tucson, Arizona
A. Chatterjee, University of Arizona

Retrofitting a University Building — Apply Two Building Energy Performance Analysis Tools to Assist Sustainable Implementation Strategies for Watt Hall
S. Lin, T. Spiegelhalter, M. Schiler and C. Kappeller, University of Southern California

Design Education

EMS-Post-Occupancy Monitoring and Building Energy Performance Certificate Implementation for the USC-School of Architecture
T. Spiegelhalter, University of Southern California

Policy and Marketing

Programs and Perspectives from India and Some Renewable Policies
B. Aprameya Swarup and S. Raghavendra, Sri Jayachamarajendra College of Engineering, India

Business Meetings

- Society of Building Science Educators Annual Meeting — **Garden Salon Two**
- ASES Ethics and Members Concerns Committee — **Royal Palm Five**
- ASES Renewable Fuels and Sustainable Transportation Division — **Crescent**
- ASES Solar Thermal Division — **San Diego**

Dealer/Installer Training

Tuesday, May 6

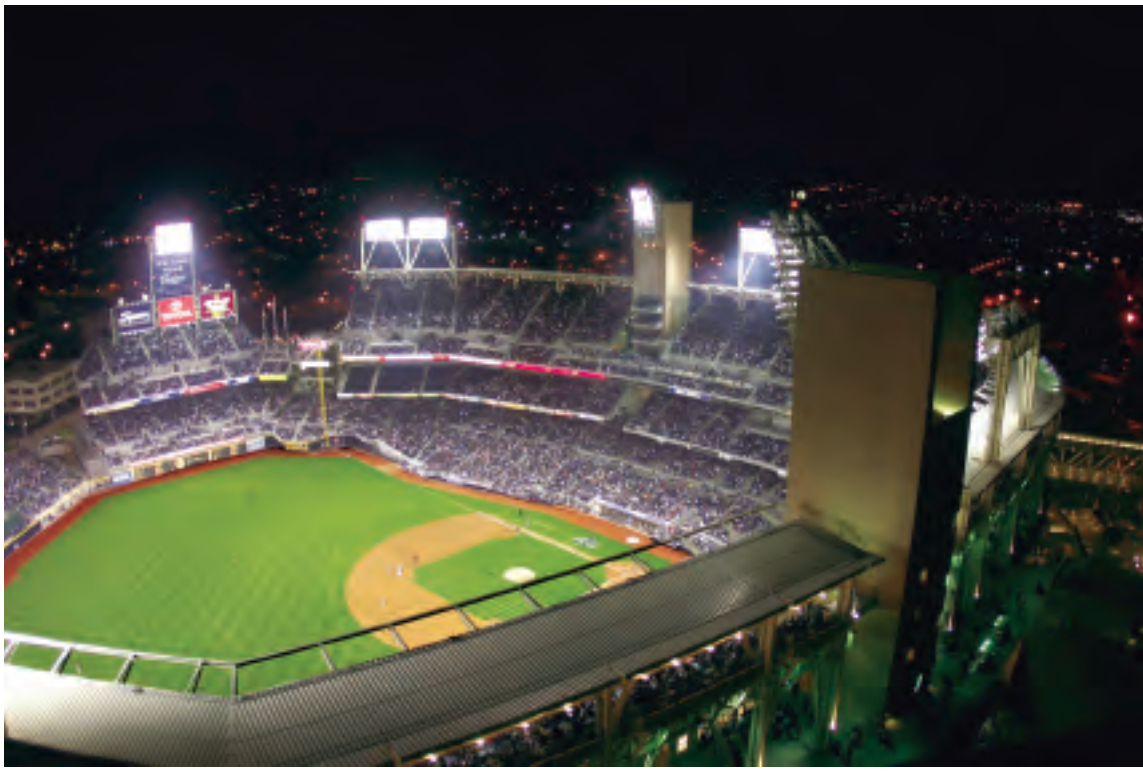
2:30 pm – 3:30 pm

Battery Maintenance and Technology Overview

Windsor

A comprehensive overview of how a deep cycle battery works, related technological information and key maintenance guidelines for optimum upkeep. Will also include a Trojan Battery product update and a Q&A Session.

Tuesday



San Diego looks to the California Center for Sustainable Energy as a trusted source of unbiased information and a one-stop shop for sustainable energy information and services.

Tuesday, May 6

2:00 pm – 3:30 pm

Buildings That Teach

San Diego

Moderator: Vikram Sami, Lord Aeck Sargent Inc.

Education is one of the key components in the success of the green building movement, and what better teaching tool than green buildings themselves? This session brings together a team of nationally recognized green building experts to explore the potential of green building to foster meaningful connections between visitors and the environment, accelerating the transition to a greener society. Drawing from lessons learned and strategies employed in community facilities designed explicitly to showcase green building, the presenters will explore how tactile, visual and experiential green building solutions can provide meaningful metaphors, helping communities connect to their cultural and natural ecologies.

Speakers include:

- Victor Olgyay, Rocky Mountain Institute
- Steve Cannon, Gwinnett County Environment Heritage Center
- James Nicolow, Lord Aeck Sargent Inc.

Certification and Testing — Keeping Pace with Growing Markets

Hampton

Moderator: Jerry Ventre, Interstate Renewable Energy Council

Some say certification programs are too expensive and bring extra layers of bureaucracy to the market. Others say that certification organizations need to expand more quickly and become more efficient to absorb increased demands. This forum will bring up-to-date information on a variety of product and practitioner certification programs and address some of the questions on the table.

Presentations include:

- *Solar Thermal Hardware Certification*
  Les Nelson, Solar Rating & Certification Corporation
- *Photovoltaic Testing and Certification at Arizona State University Photovoltaic Testing Laboratory*
  G. Tamizh-Mani, Photovoltaic Testing Laboratory, Arizona State University Polytechnic
- *Small Wind Turbine Certification*
  Larry Sherwood, Sherwood Associates
- *Testing Small Wind Turbines at the NREL's Wind Technology Center*
  Karin Sinclair, National Renewable Energy Lab
- *Credentialing Programs for Practitioners & Training*
  Jane Weissman, Interstate Renewable Energy Council

Concentrating Solar Power

Golden West

Organizer: Byron Winn, Colorado State University and SRCC

Several Concentrating Solar Power (CSP) plants are currently either operating, under construction or planned. This Forum will present information about the U.S. Department of Energy's involvement in CSP, a utility perspective, and panelists talking about solar thermal and photovoltaic technologies involved in concentrating solar power systems.

Panelists include:

- Frank Prager, Xcel Energy
- Sarah Kurtz, National Renewable Energy Laboratory
- Fred Morse, Abengoa Solar
- Thomas Mancini, Sandia National Laboratories

Local Government's Role in Building a Solar Infrastructure

Sheffield

Moderator: Stuart Cooley, City of Santa Monica

Come learn how to build a local solar initiative from those who are doing it! Don't wait for the Feds or the State to draft Draconian legislation. Work with your local municipality to develop a common sense program that leverages existing programs and at the same time meets local needs. See how it works in other progressive cities — what works and what doesn't — and find ways to champion the effort to put solar on as many roofs as possible.

Speakers include:

- Susan Munves, Energy and Green Building Programs Administrator, City of Santa Monica
- Cal Broomhead, Energy and Climate Programs, Department of Environment, City of San Francisco
- Brady Radovich, SolarCity Corporation

Small Wind, Big Impact — Smart, Effective Marketing Tips for Small Wind Retailers

Royal Palm One

Moderator: Miriam Robbins, Southwest Windpower

For the small wind retailer, marketing encompasses everything from what products you choose to sell, what you have on your website and how often you talk to your local newspaper editor. Join a panel of small wind marketing experts to learn about best practices for marketing small wind to a mainstream audience. This forum is for businesspeople passionate about small wind, in search of marketing tips for taking their businesses to the next level. Panelists will cover a range of topics including how to best use your website to communicate with customers, how to reach your audience through media relations and how to become a local small wind expert. Join this panel of marketing, advertising, public relations and sales experts to learn how to take your small wind business to the next level.

Speakers include:

- Lindsey Burgess, Account Manager, Porter Novelli
- Michelle Venus, Marketing Manager, One Tribe Creative
- Meredith Greig, All Season Home Improvement
- Bob Hayes, Owner, Prevailing Wind
- Miriam Robbins, Marketing Manager, Southwest Windpower

Focusing Attention on New Concentrating Collector Technologies Technical Session

Royal Palm Three

Session Chair: Lorin Vant Hull, University of Houston

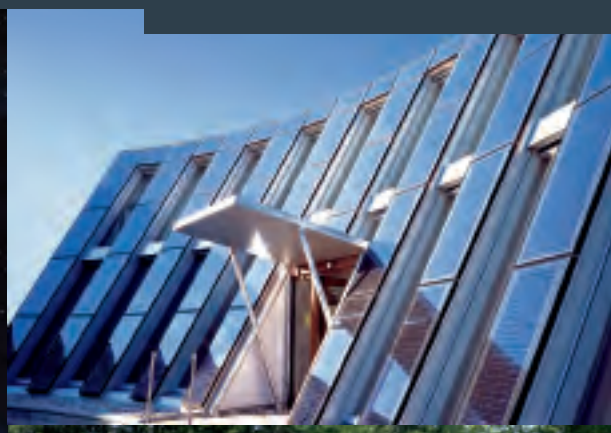
Microoptical Film for Low Cost Solar Concentrators
N. Walker, and C. Zhang, Microsharp, United Kingdom and D. Robertson, NetPark Research Institute

New Optical Modeling and Material Degradation Results in the Long Term Study of a Novel ICPC Solar Collector Installation
W. Duff and J. Daosukho, Colorado State University

A Lightweight Concentrating Solar Dish Design Utilizing a Stretched Membrane Reflector
D. Simmers, A Better Focus Co.

An Evolutionary Path for Concentrating Thermal Solar Power Technologies — A New Approach for Modeling CSP Power Costs and Potential
Y. Zhang, University of Maryland and S. Smith, The Joint Global Change Research Institute

Let's Build Sustainability



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Tuesday, May 6

2:00 pm – 3:30 pm *(continued)*

PV and Passively Active Buildings Technical Session

Garden Salon Two

Session Chair: David Panich, Panich + Noel Architects

Equilibrium — Demonstrating a Vision for Sustainable Housing in Canada
T. Green, Canada Mortgage and Housing Corporation, Canada

Impacts of Array Configuration on Land Use Requirements for Largescale Photovoltaic Deployment in The United States
P. Denholm and R. Margolis, National Renewable Energy Laboratory

Solar Energy Development in Kuwait
A. Hajiah, S. Al-Jandal and G. Maheshwari, Kuwait Institute for Scientific Research, Kuwait

Innovative Household Solar System Produces a Positive Net Energy Cost
S. Dent, Dent & Nordhaus, Architects, LLC

Design and Thermal Performance of a Solar House with BIPV/T System, Thermal Storage and Passive Solar Heating
Y. Chen, A. Athienitis, B. O'Neill and K. Galal, Concordia University, Canada

Sustainable Skins Technical Session

Crescent

Session Chair: Bruce Haglund, University of Idaho

The Potential Application of Natural Fiber Reinforced Bio-Polymer Composites in Architecture
J. Cleveland, T. Spiegelhalter, M. Schiller and G. Schierle, the University of Southern California

An Introduction of Possible Composite Structures of a Building Envelope for the Climate of New Delhi, India, Based on Optimum U-Value Derivations
N. Bhowal, Design Consortium, India

Real Energy Saving Performance of Thermal Mass Walls Demonstrated in a Zero Energy House
L. Zhu, Tianjin University, People's Republic of China and R. Hurt, D. Correa and R. Boehm, University of Nevada Las Vegas

Performance Evaluation of Double Skin Façade Technology for Office Building
R. Sonal and M. Herman, BuroHappold CoSA Solutions

The Effect of the Optical Properties of Roofs and Walls on the Thermal and Energy Performance of Residential Buildings
A. Fanchiotti, S. Braconi and C. Gentile, Università degli Studi Roma Tre, Italy

Demand Side Management for Metal Buildings
P. Hartman, Sustainable Structures LLC

4:00 pm – 5:30 pm

Real Stories from Real Buildings

Sheffield

Moderator: Nicholas Rajkovich, Society of Building Science Educators

This session will present findings from selected building case studies conducted by students, faculty and practitioners using methods and equipment from the Vital Signs and Agents of Change curriculum projects. This session is jointly sponsored by the Society of Building Science Educators (SBSE). The projects to be presented take a scientific look at building performance. The concept is simple: visit real buildings; make observations; develop questions and hypotheses about performance; make measurements and talk to building users; develop understandable conclusions that can inform future design efforts and building operations.

Presentations Include:

- *Lighting the Atrium*
  Emily Hoyt and Taylor Mikosz, Ball State University College of Architecture and Planning
- *Instrumentation & Visualization — A Comparative Assessment of Thermal, Luminous, and User Interface Performance in the Educational Setting*
  Rhonda Lowe and Lindsey Frizzell, University of North Carolina at Charlotte
- *Monterrey Building Energy Audit*
  Nickolas Arnold and Michael Bejrowski, The University of Texas at San Antonio
- *Why is it so COLD in here?*
  Jake Keeler and Britni Jessup, University of Oregon, Department of Architecture

SBSE Architectural Education Initiatives

Hampton

Moderator: Christopher Theis, Louisiana State University

How are architecture schools responding to the increasing evidence that buildings and the building industry are significant contributors to global climate change? Many architecture professors, through no fault of their own, are unprepared to teach students how to design more environmentally sensitive buildings. It's not that they don't care — they do! They just lack the knowledge to provide their students with the appropriate approaches and tools. How can they best gain this knowledge in a short period of time? Please join members of the Society of Building Science Educators in a discussion of this problem and ways to solve it.

Panelists include:

- Walter Grondzik, Ball State University
- Bruce Haglund, University of Idaho
- Alison Kwok, Ph.D., University of Oregon

Solar Thermal = Electricity = Natural Gas! — A Hot Way to a Cool Climate

San Diego

Moderator: Tim Merrigan, National Renewable Energy Lab

Solar thermal is hot…and very cool! Solar thermal heating and cooling are attracting renewed attention in today's renewable and carbon markets, and with good reason! Equipment is reliable, cost-effective, and available off-the-shelf. Advanced metering allows accurate measurement and reporting of system performance. Innovative business models are creating new market opportunities. These factors make solar thermal a strong contributor for meeting RPS requirements, supplying green energy, offsetting greenhouse gases and creating RECs. Come and hear what the major players from utilities, industry and states are accomplishing.

Speakers include:

- Tina Halfpenny, KeySpan Energy
- Les Nelson, Solar Rating and Certification Corporation
- Andrew McAllister, California Center for Sustainable Energy
- Bernadette Del Chiaro, Environment California
- Nick Chaset, California Public Utilities Commission


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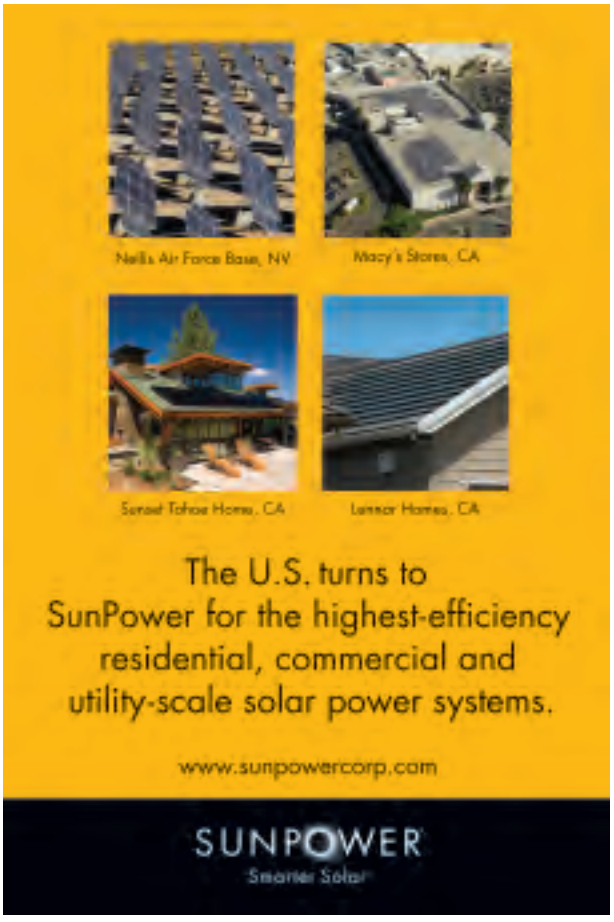
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Tuesday, May 6

4:00 pm – 5:30 pm *(continued)*

U.S. Photovoltaic Markets — Royal Palm One

Moderator: Larry Sherwood, Sherwood Associates

Photovoltaic markets in the U.S. are growing. This forum will answer the following questions – Where is the growth the fastest? Why? What policies lead to PV installations? What policies are needed to sustain growth? What market growth can we expect in the next several years?

Presentations include:

- *PV Policies Leading the Way*
  Susan Gouchoe, NC Solar Center
- *Risks to Growth and Range of Prospects through 2012*
  Travis Bradford, Prometheus Institute
- *State Markets Follow Policies*
  Larry Sherwood, Sherwood Associates

Utility Integration and Renewable Technology Optimization — Royal Palm Three

Session Chair: Vicki Colello, New York State Energy Research and Development Authority

Spatial and Temporal Interactions of Solar and Wind Resources in the Next Generation Utility
B. Palmintier and L. Hansen, Rocky Mountain Institute and J. Levin, University of Colorado at Boulder

Improved Electrical Load Match in California by Combining Solar Thermal Power Plants with Wind Farms
B. Vick and R. Clark, USDA-ARS and M. Mehos, National Renewable Energy Lab

Towards Reaching a Consensus in the Determination of Photovoltaics Capacity Credit
R. Perez, ASRC; T. Hoff, Clean Power Research; M. Taylor, Solar Electric Power Association and J. Ross, Sungevity

Performance Evaluation of a 1.2kw PEM Fuel Cell Connected to Wind/PV Distributed Generation Systems
A. Cultura, Mindanao Polytechnic State College, Phillippines and Z. Salameh, University of Massachusetts Lowell

Renewable Energy Planning — Multiparametric Cost Optimization
A. Walker, National Renewable Energy Lab

Evaluating Renewable Energy Economics Technical Session — Crescent

Session Chair: Stephen Sargent, Sargent and Associates

Options for Selling Solar Distributed Generation to an Interconnected Utility in California
K. Fox, Wilson Sonsini Goodrich & Rosati

PV Energy — Cost vs. Price in the Marketplace
J. Bing, New Energy Options, Inc.

"Grid Parity" is a Red Herring
A. Black, OnGrid Solar Energy Systems

Solar San Diego — The Impact of Binomial Rate Structures on Real PV-Systems
O. Van Geet and E. Brown, National Renewable Energy Laboratory; T. Blair, City of San Diego, Department of Environmental Services and A. McAllister, California Center for Sustainable Energy

Measuring and Testing Building Performance Technical Session — Garden Salon Two

Session Chair: Victor Olgyay, Rocky Mountain Institute

A Post-Occupancy of Occupancy at IslandWood
A. Kwok, S. Coltrane-Briscoe and E. Meier, University of Oregon

The Influence of Landscaping Materials on Urban Heat Islands
M. Tural, Arizona State University

Feedback Systems in High Efficiency Solar Homes — Fostering Energy-Efficient Occupants
R. Kerr, BIRA/ConSol and D. Toy, California State University, Chico

Heating and Cooling Performance of a Roofpond-Direct Gain Test Cell
A. Fernandez-Gonzalez and D. Overbey, University of Nevada, Las Vegas

Laboratories 2030 — Implications of the 2030 Challenge for the Research Building Sector
J. Nicolow and V. Sami, Lord Aeck Sargent Architecture and V. Olgyay, Rocky Mountain Institute

This Is Not a Toy
E. Meier, T. Polich and N. Vaughan, University of Oregon

5:45 pm – 6:45 pm

Business Meetings

- ASES Meetings & Conferences Committee — Royal Palm Two
- ASES Solar Electric Division — Royal Palm Three
- ASES Sustainability Division — Sheffield

6:30 pm

Emerging Architecture — Golden West

Moderator: Harvey Bryan, Arizona State University

Presentation of the ASES Passive Pioneer Award.

An examination of the San Francisco Federal Building

- Brandon Welling, Morphosis Architects
- Erin McConahey, ARUP
- Maria T. Ciprazo, AIA, GSA Property Development Division

8:30 pm

Emerging Transportation — San Diego

Moderator: Stephen Heckeroth, ASES Renewable Fuels and Sustainable Transportation Division

The documentary *Who Killed the Electric Car?* has mainstreamed interest in electric vehicles and has brought attention to the auto industry's role in delaying the availability of clean, renewably powered vehicles. Chris Paine, director of the film, and Chelsea Sexton, one of the main characters in the documentary will speak on their continuing efforts to promote vehicles that can be charged from renewable energy. Steve Heckeroth, Chair of the Renewable Fuels and Sustainable Transportation Division will wrap up the plenary with a presentation on the many advantages of solar electric mobility.

- Chris Paine, Papercut Films
- Chelsea Sexton, Plug In America
- Stephen Heckeroth, ASES Renewable Fuels and Sustainable Transportation Division

Solar Success! Training Event

Wednesday, May 7

8:00 am – 9:50 am

Southwest Windpower
Renewable Energy Made Simple

Southwest Windpower — Garden Salon Two

Presenter: Steven Loritz, Training Manager

This session will provide information about our company and our products. Topics important to wind generated electrical power will also be discussed, including wind theory and siting, zoning and planning, as well as the market for small wind in the United States.

Conergy Commercial Financing Program Selling Strategies — Garden Salon One

Presenter: Matt Kyriakos, Conergy Commercial Sales Director

This session will provide an overview of the program's features and benefits and provide valuable information about using finance as a selling tool in commercial and government markets. The session will also feature cash flow examples and Q&A.

8:00 am – 11:50 am

Apollo Solar Off-Grid PV Power NABCEP Training — Sheffield

Presenters: John Pfeifer, President & Daniel TwoEagles, Sales & Marketing

Complete overview of the features, capabilities, installation, and operation of the Apollo Solar Off-Grid PV Power product line. The training covers the TrueSineWave SplitPhase Inverters, the 80/100 Amp MPPT Charge Controllers, the Wireless Remote Data Monitors, and the Plug-and-Play Wiring Enclosures. The training is certified for 3.5 hours of continuing education credit by the North American Board of Certified Energy Practitioners (NABCEP).

10:00 am – 11:50 am

Sanyo HIT Power Technology — Hampton

Presenters: Benjamin S. Collinwood, Market Development Manager & Robert Zerner, Market Development Specialist

Gain knowledge about the unique features of SANYO's HIT technology and new HIT Power© series being introduced June 2008. The features of HIT technology will be explored, including: attributes, operating characteristics, electrical and mechanical specifications, performance, construction (of both cells and modules), appropriate uses and applications, its unique selling points, affect on rebates, upcoming product changes and comparison to other crystalline solar technologies.

Course Flooded Lead-Acid Batteries in Off-Grid Applications — Garden Salon Two

Presenters: James Surrette, President & Patrick Friesen, Accounts Manager

The intention of this technically focused discussion (NABCEP Certified) is to bring a clear understanding of the often misunderstood workings of the lead-acid battery. This presentation will begin with a short video depicting modern battery production processes in an attempt to clarify associated industry jargon. The body of the presentation will focus on diagnosis and troubleshooting techniques involving performance issues, temperature effects, charging parameters, sulfation and maintenance considerations. Our product line overview, sizing recommendations and method of bringing product to the market will conclude this presentation.

Financing for your Residential Solar Projects — Garden Salon One

Presenter: Michael D. Pryde, Director, North American Sales, Residential & Commercial Financing, CleanPowerFinance

Maintaining momentum in the solar sales process is the most important factor in closing more deals. Many times, the customer is ready, willing and able to move forward, but does not have the time to arrange funding for their solar installation. Clean Power Finance & Conergy's Renewable Energy Financing program equips you with the tools you need to get your prospect 'closer to yes.' With our Sales Tools (case studies, payback calculators, savings charts), we help make you an informed resource to educate your prospects on their financing options. And when your prospect is ready, Clean Power Finance can arrange funding for their solar project. With over 150 lending partners across all 50 states, Clean Power Finance offers both secured and unsecured products for residential & commercial projects. And with our web-based CPF Tools software, you can initiate and track your prospects' financing in real time. With a dedicated staff of professional renewable energy financing specialists, Clean Power Finance can help you close more deals today.

Wednesday, May 7

7:00 am – 8:00 am

Speakers' Breakfast — California

ASES Policy Committee — California

7:30 am – 5:00 pm

SOLAR 2008 Registration Open — Atlas Ballroom Foyer

8:30 am – 10:00 am

Community Solutions Plenary

Atlas Ballroom

Moderator: Margot McDonald, SOLAR 2008 Chair, CalPoly San Luis Obispo

At the forefront of leading our communities to meet energy efficiency and renewable energy goals are policymakers and innovators with the professional acumen and persuasive ability to inspire, motivate, and precipitate change. In this session, we will hear from several speakers who are change agents for advancing our communities towards a sustainable energy future.

- Timothy N. Tutt, first advisor to Jackalyne Pfannenstiel, Chair, California Energy Commission
- Julie Blunden, Vice President, Public Policy and Corporate Communications, SunPower Corporation
- Daniel Lerch, Post Carbon Cities Program Manager, Post Carbon Institute
- Edward Mazria AIA, Founder, Architecture 2030

11:00 am – 12:30 pm

Discovering the Distribution — Capacity Value of Solar

Golden West

Moderator: Yasmeen Hossein, Solar Electric Power Association

In efforts to deploy PV cost-effectively today, utilities are increasingly recognizing the value of PV in deferring distribution capacity investments and/or enhancing distribution system performance. This value is overlooked in typical customer-driven PV projects and in utility contexts, if utilities base their solar acquisitions only on average costs and supply-side values. However, opportunities for significant utility savings — in a range from hundreds to thousands of dollars per kilowatt — exist for projects that use PV to defer distribution upgrades and expansions or to improve distribution performance. This forum explores ways utilities are testing this approach today and the technical and policy measures to support widespread replication.

Speakers include:

- Chris Robertson, Strategic Solar Solutions
- Jeff Curry, Lakeland Electric
- Richard Perez, Atmospheric Sciences Research Center, State University of New York
- Alex Kim, San Diego Gas and Electric, Sempra Energy

Filling the Workforce Gap — Green Skills in the Golden State

Royal Palm Two

Moderator: Elaine Hebert, Northern California Solar Energy Association

Jobs, jobs, jobs! As the renewable energy industry grows in California, and energy efficiency and green building efforts expand from the state's mandates for its own government buildings to the private sector, we need more people with the right skills to perform a job well done. Several independent efforts have arisen to meet the needs of present and future job markets in green energy and energy efficiency. Come hear about opportunities for teaching and learning green skills in the Golden State.

Presentations include:

- *Re-Energizing Community College Technical Education Programs*
  Greg Newhouse, Program Manager, San Diego Miramar College
- *Answering the Need for Instruction in Solar Electricity — An Overview of the Photovoltaic Installer Program at East Los Angeles Skills Center*
  Brian H. Hurd, The East Los Angeles Skills Center, Los Angeles Unified School District, DACE
- *Energy Training for Recognized Industry Certifications*
  Tom Chatagnier, Diablo Valley College
- *Filling the Workforce Gap – Green Skills in the Golden State*
  Carla Din, Apollo Alliance

Showcasing LEED Institutional Buildings in California

Royal Palm Four

Moderator: Claudia Wentworth, President, Quick Mount PV

A session of interest to any City Manager, large facility manager, architect, sustainable system designer or construction professional, we will focus on the success and challenges as well as long range economic benefits of sustainable resource management of large facilities. The panel will present examples of large institutional facilities (colleges, prisons, juvenile facilities, etc.) that have instituted resource management best practices utilizing solar electric, fuel cell, large scale water management, conservation etc.

Speakers include:

- Michael Miller, Butte-Glenn Community College District
- Matt Muniz, P.E., County of Alameda, GSA/TSD
- Brian L. Swanson, Fidelity Roof Company
- Narinder Bansal, Professor, Ohlone College – Center for Health Sciences and Technology
- George Rodgers, Professor, Ohlone College – Center for Health Sciences and Technology

SDG&E installed solar panels on the roof of the Reuben H. Fleet Science Center in Balboa Park and the clean electricity generated is shared with the San Diego region.

Wednesday, May 7

11:00 am – 12:30 pm *(continued)*

Solar Charged Agriculture

Royal Palm Three

Moderator: Steven Heckeroth, Chair, ASES Renewable Fuels and Sustainable Transportation Division

Experts have estimated that it takes 8–10 units of air polluting fossil energy to put 1 unit of food energy on American tables. It has also been estimated that it takes the equivalent of 10 barrels of oil per year to feed every person in the country. Approximately 30% of the fossil inputs into agriculture are used to manufacture fertilizers, 20% to fuel farm machinery, 16% is for transportation of food from farm to store, 13% for irrigation, 8% for raising livestock, 5% for crop drying; 5% for pesticide production, and 3% other. As the realities of declining fossil fuel supplies and Climate Change become apparent, everyone will face challenges in the rising cost of mobility and energy but the most important challenge may be to maintain an affordable and nourishing food supply. Speakers in this forum will suggest that solar charged sustainable agriculture holds the solutions to many of these challenges.

Presentations include:

- *Actual Experience With Growing and Pressing Bio Diesel Feedstock on California Farms*

Ken Kimes, Farm Fuel Inc.

- *Solar Agriculture — Financial Solutions and Opportunities*

John Whisman, Commercial Sales Manager, Stellar Energy Solutions, Inc.

- *Solar Charged Agriculture*

Steven Heckeroth, Chair, ASES Renewable Fuels and Sustainable Transportation Division

Status of the Feed-In Law Movement in the U.S.

San Diego

Moderator: Paul Gipe, wind-works.org

The grassroots movement to bring European-style feed-in tariffs to North America is gaining momentum as several states and Congress weigh the policy. Following the success of the campaign for Advanced Renewable Tariffs in Ontario, Michigan Representative Kathleen Law introduced HB 5218 (2007) for a full-featured ARTs policy in the state. Several other states may soon follow suit and a bill may be introduced into both the US Senate and the House. This forum provides a status report on state and federal campaigns for feed-in tariffs in the USA, the barriers faced, and the opportunities that can be seized.

Presentations include:

- *Introduction of HB 5218, Michigan's Renewable Energy Sources Act*

Representative Kathleen Law, Michigan House of Representatives

- *Introduction of AB 1807, Renewable Electric Generation Feed-in Tariffs*

Assembly Member Felipe Fuentes (TBC), California State Assembly

- *Moving Toward Advanced Renewable Tariffs in Wisconsin*

Michael Vickerman, Focus on Energy

New Developments in Resource Assessment Technical Session

Royal Palm One

Session Chair: Nate Blair, National Renewable Energy Lab

Establishing a Consistent Calibration Record for Eppley PSPs
L. Riihimaki and F. Vignola, University of Oregon

Chhaya 2.0 — Using A Dynamic Balance Point to Extend the Passive Season
V. Sami, Lord Aeck Sargent and V. Olgyay, Rocky Mountain Institute

From Global Horizontal to Global Tilted Irradiance — How Accurate Are Solar Energy Engineering Predictions in Practice?
C. Gueymard, Solar Consulting Services

Estimation of Tital Energy, Barrotropic and Baroclinic Energy Flux, at Kaena Ridge Hawaii
S. Khoshmanesh and S. Bordbar, Sharif University, Islamic Republic of Iran

Buildings' Carbon Neutrality — The Journey to 2030 Technical Session

Town & Country

Session Chair: Walter Grondzik, Ball State University

Getting to Carbon Neutrality in Buildings
H. Bryan, Arizona State University

Greenfoot — a Tool For Estimating The Carbon and Ecological Footprints of Buildings
V. Olgyay, Rocky Mountain Institute

Building America Homes — A Blueprint for the 2030 Challenge
A. Neugebauer and R. Kerr, ConSol

Demand Side Management Programs and Renewable Energy Generation to Avert the Installation of New Coal-Fired Power Plants
A. Fernandez-Gonzalez, University of Nevada, Las Vegas

Creating a Sustainable Infrastructure and Zero-Fossil-Energy-Operated Buildings for Catalina Island in Southern California
T. Spiegelhalter, University of Southern California

A Comparison of LEED and Green Globes Using Dual Certified Buildings
H. Bryan, Arizona State University and J. Skopek, ECD Energy and Environment, Canada

12:30 pm – 2:00 pm

AMERICAN SOLAR ENERGY SOCIETY

ASES Annual Meeting

Golden West

Solar Success! Training Event

Wednesday, May 7

1:00 pm – 2:50 pm

Utility Scale Inverters and How They Drive the PV Project

Hampton

Presenter: Martin Valeri, Manager, PV Packaged Systems Sales

Industrial Utility Scale Inverters — How to select, size and determine the conditions and environment for utility scale PV Inverters. This session will answer the question of why use an industrial grade inverter that is built and certified for utility/commercial applications.

Fronius IG and Monitoring Solutions

Sheffield

Presenters: Brian Lydic, Application Engineer & Sean Hickey, Southwest Regional Sales Manager

Fronius IG inverters & data communications applications for residential and commercial grid-tie PV systems. Overview of inverter model offering, datcom monitoring components, applications, set up, installation and trouble shooting.

The Conergy SunTop PV Mounting System and Code-Compliant Sizing Tool

Garden Salon Two

Presenter: Don Massa, Conergy Product Manager

An introduction to the Conergy SunTop pitched roof mounting system and accessories. Learn how this innovative roof mounting system can save you time and money on every type of pitched roof. A demonstration of Conergy's code-compliant sizing tool will also be provided.

State Rebate & Incentive Landscape

Garden Salon One

Presenter: Gregg Cassarini, Market Research Manager

Overview of state policy and regulatory landscape, including discussion of rebate, incentive and tax credit programs. Session will include information about renewable portfolio standards and associated solar carveouts. In addition recent and upcoming solar legislation on the federal and state level will be covered.

Wednesday

Wednesday, May 7

2:00 pm – 3:30 pm

The Bright Promise of Thin Film Photovoltaics

Town & Country

Organizer: Peggy Hock, United Solar Ovonic, LLC

The world needs less expensive PV systems! Advances in Thin-Film PV production and innovations in Thin Film applications are likely to be the most rapid and best available means to achieve it. Come learn how and why from a panel of industry experts.

Presentations include:

- *Low Cost Copper Indium Gallium Selenide (CIGS) by the FASST Process*

BJ Stanbery, Ph.D., CEO, HelioVolt Corporation

- *Building Integrated Thin Film, Benefits of the Unique Properties of Technology*

Arthur Rudin, Vice President of Product Development, Solar Integrated Technologies

- *The New Standard — 5.7m$_2$ Solar Modules*

Craig Hunter, Director, Solar Business Group, Applied Materials

- *Update on the U.S. Thin Film Market*

Peggy Hock, United Solar Ovonic LLC

Smart Grid

Golden West

Moderator: Byron Winn, Colorado State University and SRCC

There is currently a great deal of interest in the concept of a smart grid. Xcel Energy is planning a pilot study for a city of approximately one hundred thousand population. Several bills have been introduced in Congress. This forum will consist of a panel representing utilities, legislators, Smart Grid experts, and Independent Systems Operators.

Panelists include:

- Scott Anders, Energy Policy Initiatives Center - University of San Diego School of Law
- Roy Palmer, Managing Director, Government and Regulatory Affairs & Director of the Xcel Energy Smart Grid City Project
- Jim Blatchford, Senior Policy Issues Representative, California ISO

Two Thumbs Up — Videos that Spotlight Renewable Energy Solutions to Climate Change

San Diego

Moderator: Paulette Middleton, Aspen Hill Films

Have you seen any good entertaining and thought provoking renewable energy videos lately? Would you like to help get the climate recovery messages out to people who may not yet be aware of the climate change issues and the benefits of "thinking green" to address these issues? Come to this ASES mini film festival, share your ideas about video content and form that might appeal to diverse audiences, and enjoy meeting other filmgoers and filmmakers. We are not just talking *An Inconvenient Truth* or *The 11th Hour* here; with the emergence of YouTube and other web-based distribution methods, the opportunities for organizations to embrace video as a way of addressing their renewable energy and climate recovery messages, and for filmmakers to have new audiences to whom to convey their messages using their creative talents, have never been better. Many examples of excellent short subjects are already out for distribution via the web and even the art cinema houses. This forum brings together a diverse group of filmmakers to show examples of their work and discuss how this artistic format is helping organizations get their critical messages out to larger audiences.

Featuring:

Clay Atchison: "Solar Decathlon — A Solar Village on the National Mall"

Jessica Kellett: "ClimateQuest"

Dave Bowden: the "Clean Energy News" series — "Buying A Solar Electric System" and "Building A Solar Home"

Dave Wann: "Secrets of the Sun"

Dave Renné & Paulette Middleton: "Voices in the Light"

James Rawsthorne: "NREL in 180 seconds — A Case Study in Institutional Storytelling"

Ted Stern, James Dean Conklin, & Elisa Zazzera: "Solar Circus"

Solar Resource Data Applications Technical Session

Royal Palm One

Session Chair: Tom Stoffel, National Renewable Energy Lab

Satellite Based Assessment of the NSRDB Site Irradiances and Time Series from NASA and SUNY/Albany Algorithms
P. Stackhouse, Jr., NASA Langley Research Center; T. Zhang, W. Chandler, C. Whitlock, J. Hoell and D. Westberg, Science Systems and Applications, Inc.; R. Perez, University of New York at Albany and S. Wilcox, National Renewable Energy Laboratory

Development of an Updated Typical Meteorological Year Data Set for the United States
S. Wilcox and W. Marion, National Renewable Energy Laboratory

A Western Hemisphere Solar Data Set for Rapid Resource Assessment
B. Walter and B. Nijssen, 3TIER

Decadal Differences in Satellite Derived Solar and Meteorological Parameters
W. Chandler, J. Hoell, D. Westberg, C. Whitlock, and T. Zhang, Science Systems and Applications, Inc. and P. Stackhouse, Jr., NASA Langley Research Center

Using Satellite Images to Predict Solar Irradiance for Sub-Tropical South China
Z. He and E. Ng, The Chinese University of Hong Kong

In October, 2007, over 115,000 people experienced solar energy living by attending the ASES National Solar Tour.

Wednesday, May 7

2:00 pm – 3:30 pm *(continued)*

Innovative Workforce Development Programs Technical Session

Royal Palm Two

Session Chair: Jane Weissman, Interstate Renewable Energy Council

PV Workforce Development and the Market for Customer-Sited PVs
M. McRae, D. Moran and J. Peters, Research Into Action, Inc. and C. Nemore, P. Gonzales and A. Ferranti, New York State Energy Research and Development Authority

Solar Energy Education and Training by Florida's Alternative Energy Banner Center
D. Block and S. Schleith, University of Central Florida/Florida Solar Energy Center; R. Frazier, Tallahassee Community College; T. Shiner, Workforce Florida, Inc.; J. Newman and J. Brennan, Westside Technical School; S. Awtononow, Brevard Community College; L. Rice, Brevard Workforce Development Board; M. Roig, Broward Community College; and C. Kettles, Florida Solar Energy Industries Association

Alternative Energy Engineering Technology — The First Graduates
R. Welch, Lansing Community College

Solar Teaching Facility Developed to Train for NABCEP Certification
D. Thayer, K. Benyo and C. Madsen, Minneapolis Joint Apprenticeship and Training Committee and M. Monesterio and H. Peterson, Best Power Intl., LLC

A Certification Model for Solar Salespeople
A. Black, OnGrid Solar Energy Systems

The Zen of Zero Energy Homes Technical Session

Royal Palm Four

Session Chair: Nick Rajkovich, Cornell University

Climatic Alignment of Architectural Design Strategies Through an Analysis of Native Plants in Southern California
A. Lee and T. Spiegelhalter, University of Southern California

The Carriage House — Evaluating Renewable Resource Integration for Net Zero Residential Energy and Water in a Cold Climate
M. Yoklic, University of Arizona; M. Knaebe, USDA, Forest Service, and S. Gerstle, S. Vaughan Gerstle, Architect

Validated Evaluation on Building Energy Conservation Features in a Zero Energy House
L. Zhu, Tianjin University, People's Republic of China and R. Hurt, D. Correa and R. Boehm, University of Nevada Las Vegas

Searching for the Optimal Mix of Solar and Efficiency in Zero Net Energy Buildings
S. Horowitz, C. Christensen and R. Anderson, National Renewable Energy Laboratory

Solar Success! Training Event

Wednesday, May 7

3:00 pm – 4:50 pm

Fat Spaniel — Monitoring & Reporting Services

Hampton

Presenter: Peter Lum, Senior Training Manager

This session will cover energy monitoring and performance reporting services, Fat Spaniel's offering in the marketplace, and discuss the specific systems and architectures used to provide these services.

OutBack Power Systems Product and Installation Overview

Sheffield

Presenter: Roy Dyngen, North American Sales Manager

This session will focus on the entire OutBack Power Systems Power Electronics and Balance-of-System product line, including true Sinewave Inverter/Chargers, Maximum Power Point Tracking Charge Controllers and integration products.

Xantrex Grid Tie products — GT Series Grid Tie Solar Inverters — Single Phase, Three Phase

Garden Salon Two

Presenters: Lloyd Gomm, Director, Marketing, Solar & Backup Power & Erika Yedid, Product Application Engineer, Solar & BUP Power

GT Single Phase – 2.8 – 5.0, GT 30, GT 100, GT 250

Installers and dealers can gain an understanding of the GT – Series product line and how to install it. This session reviews features of the GT installation, performance, and performance monitoring, how to plan the installation, voltage and sizing requirements, array sizing, grounding and disconnects. This session reviews proper install of the Xantrex GT series product for a PV System installation.

Selling the Financial Payback for Grid-tie PV Systems

Garden Salon One

Presenter: Andy Black, OnGrid Solar

Learn how to understand, calculate, and demonstrate the economics of PV projects. Much more than just "Payback", you'll learn how to calculate the IRR (rate or return for comparison to other investments), Cash Flow if the project is financed, Resale Value Increase and Lifecycle Payback of PV projects and understand which variables are the key drivers (electric rates – tiers & time-of-use, incentives, RECs, net metering, real system loss factors, etc). Geared towards the California market but applicable anywhere the economics are attractive (NJ, HI, +?).

Wednesday

6:30 pm – 10:00 pm

Pirate Party

Buses leave from west side of SOLAR 2008 registration lobby

Join us for a swashbuckling good time! Your adventure begins with appetizers and cocktails (cash bar) aboard the HMS Surprise — a replica of an 18th century Royal Navy frigate — complete with pirate museum belowdecks. We'll then move for dinner to the Berkley — an 1898 steam ferryboat that operated for 60 years on San Francisco Bay. In addition, you can tour the B-39 — a Soviet diesel electric submarine commissioned in the early 1970s and the Maritime Museum on the lower decks of the Berkley. The adventure price includes transportation, dinner, entertainment and pirate accessories!

NOT included in full conference registration

Price: $80.00

Sponsored by

CONERGY

Wednesday, May 7

4:00 pm – 5:30 pm

Growing Green Grassroots

Town & Country

Organized by: Gwen Rose, VoteSolar and Paulette Middleton, Panorama Pathways

Looking for new ideas to inspire and activate your communities to get greener? Want to share your greening success stories? Join us at the Growing Green Grassroots Forum. We will be discussing successful, innovative ways to organize, grow and get the important jobs of greening done. The Forum will start with presentations on community organizing, online organizing, and art & activism. We will also provide a survey of how Web 2.0 tools are being used by social and environmental activists, with a look at blogs, mashups, and social networking (e.g. Facebook.com, Change.org, WiserEarth.org). The forum will feature speakers from VoteSolar, EcoArts, Focus the Nation, SolarOne's I-heart-PV campaign and other special guests. Come with your questions. Come with your ideas. Come with your passion!!!

LEEDing to Residential Solar

Golden West

Moderator: John Reynolds, Prof. Emeritus, Architecture, University of Oregon

Get passive solar design into LEED guidelines for new homes! If we are serious about Leadership in Energy Efficient Design, then solar energy should have a strong role in the design of new homes. Learn what has happened to date, and how you can help make the right things happen in the near future.

Presentations Include:

- *The LEED for Homes Implementation Process*
  Ann Edminster, Design AVEnues
- *A Promising Technology Pathway to Net ZEH*
  Bruce Baccei, BIRA Director for ConSol
- *A Promising Technology Pathway to Net ZEH*
  Johua Plaisted, President, Kineo Design Group, LCC
- *Possible Pathways to LEED for Solar Homes*
  Bion D. Howard, Consultant, Building Environmental Science and Technology

Making Installations Easier — Zoning For Renewable Energy

Royal Palm Two

Moderator: Meg Gluckman, eFormative Options

A zoning permit application is often the first exposure town and county planning officials have to small renewable energy installations. Depending on the board's previous exposure to wind or solar energy, the environment may or may not be welcoming to the installation. The difference is critical as a zoning policy has the power to determine whether or not installations happen. This forum offers the perspectives of those with experience developing supportive zoning polices, installers and consumers who worked to get policies in place in their communities, and representatives from the radio industry who will share decades of experience working with zoning officials.

Speakers include:

- Meg Gluckman, eFormative Options
- Jim Green, National Renewable Energy Lab
- Thomas Diskin, Affiliation San Mateo County Community College District
- Megan Amsler, Cape and Islands Self Reliance
- Aaron Godwin, Renaissance Group
- Dan Juhl, Next Generation Energy Systems

Solar Schools

San Diego

Moderator: Nathalie Osborn, Honeywell Building Solutions

Several states and hundreds of schools around the country have active solar schools programs, which bring a combination of active system installations (grid tied and stand-alone), hands-on solar activities & curriculum, and real-time data monitoring and visualization to the hands of students, teachers, administrators, and the public at large. The intent of these programs is to illuminate the solar possibilities and teaching principals in the classroom, catalyze interest in solar as a technology in the home and community, and provide specific tangible activities to develop the minds of our future thought leaders. The Solar Schools Forum is designed to present an overview of national programs, real world examples of solar and energy efficient schools, including teacher training and educational curriculum used to bring solar into the classroom.

Presentations include:

- *Solar Learning Stations*
  Alyssa Newman, Solar City
- *Bring Solar into the Classroom — Teacher Training Elements*
  Barry Scott, National Energy Education Development (NEED) Project
- *Improving School Facilities with Energy Efficiency and Solar*
  Nathalie Osborn, Honeywell Building Solutions
- *Real World Experience of School implementing Solar and Energy Efficiency*
  TBD, School District with Solar Project

Renewable Energy Education Programs, Courses and Techniques Technical Session

Royal Palm Three

Session Chair: Richard Michaud, Interstate Renewable Energy Council

Solar Energy Education with Service-Learning — Case Study of a Freshman Engineering Course
U. Bhattacharjee, C. Lin, R. Williams, and J. Duffy, University of Massachusetts Lowell

The Youth Energy Solutions (YES) Program
S. Schleith and P. Hall, Florida Solar Energy Center

Using Digital Media to Visualize and Teach Renewable Energy Systems
C. Atchison, Rahus Institute

Building the Solar Array at California State University, Fresno
F. Nader, California State University, Fresno

Combined Solar PV and Earth Space Monitoring Technology for Educational and Research Purposes
I. Tyukhov, M. Schakhrananyan, S. Mazanov and D. Strebkov, VIESH, Russia and F. Vignola, University of Oregon

AEE Solar was founded in 1979 as "Alternative Energy Engineering" in northern California's coastal redwood region.

Wednesday, May 7

4:00 pm – 5:30 pm *(continued)*

Comfortable Yet? Technical Session

Royal Palm One

Session Chair: Alison Kwok, University of Oregon

Indoor Temperature Predictions in a Passive Solar Building in an Arid Environment
B. Givoni, and E. Kruger, UTFPR, Brazil

Performance Prediction of Different Glazing Systems and Impact on Human Thermal Comfort — Analysis of Two Climatic Zones in the Indian Subcontinent
R. Jha, Netaji Subhas Institute of Technology, India

Cruise Control — Thermal Comfort in Commerical Office Space
K. Jeans, C. Weyrauch, M. Shibuya and L. Glynn, University of Oregon

Ruffled Pages
S. Landry, S. Glad, M. Walsh and T. Bui, University of Oregon

Home Heating and Cooling Technical Session

Royal Palm Four

Session Chair: Craig Christensen, National Renewable Energy Lab

Development of a Novel Small Scale Adsorption Cooling System
Y. Gupta and P. Phelan, Arizona State University and J. Sherbeck, Svantec Inc.

Cooling with Night Sky Radiation and Heating with Selective Surface Absorbers
S. Baer, D. Harrison, and R. Benner, Zomeworks Corp. and W. Mingenbach, Architects Taos

Validation of the Load Collector Ratio (LCR) Method and Solar Load Ratio (SLR) Method for Predicting the Thermal Performance from Five Passive Solar Test Rooms Using Measured Data
D. Overbey, University of Nevada, Las Vegas

Performance Improvement of a CO_2 Combined Cooling, Heating, and Power Cycle Using Solar Thermal Collectors
G. Diaz, University of California - Merced

The Field Operation of a Thermally Driven Liquid-Desiccant Air Conditioner
J. Miller and A. Lowenstein, AIL Research, Inc.

5:30 pm – 6:30 pm

ASES Resource Applications Division Meeting

Royal Palm One

Solar Success! Training Event

Thursday, May 8

8:00 am – 9:50 am

OutBack Power Systems Product and Installation Overview

Sheffield

Presenter: Roy Dyngen, North American Sales Manager

This session will focus on the entire OutBack Power Systems Power Electronics and Balance-of-System product line, including true Sinewave Inverter/Chargers, Maximum Power Point Tracking Charge Controllers and integration products.

Solar Water Pumping Solutions — Real World Design and Applications

Garden Salon Two

Presenters: Phil Undercuffler, Conergy Director, Battery Based / Off-grid & Jeremy Ewing, Conergy Battery-Based & Off-Grid Sales Manager, Mountain States

Water is an essential need – join us as we provide options for meeting this need. We will compare existing solar pumping technologies, and discuss ways of achieving your client's needs within their budget, with an emphasis on reliable, economical solutions. We will show how to avoid common mistakes and pitfalls, and how to install systems which will provide years of reliable service.

Brand Building, Lead Generation and Customer Education through the ASES National Solar Tour

Garden Salon One

Presenter: Richard Burns, Manager, National Solar Tour, American Solar Energy Society

Last year's National Solar Tour attendance exceeded 115,000 visitors and included over 5,000 buildings. A majority of attendees were specifically gathering information on how to incorporate solar energy in their homes. This training session will provide specific examples and guidelines on how to organize and promote a tour in your area in order to help generate leads and promote sales.

8:00 am – 11:50 am

Residential Systems Design

Hampton

Presenter: Antonio Gomez, Training Coordinator

Design, installation and troubleshooting of Grid-tie photovoltaic systems using Sunny Boy inverters for residential and small commercial applications. It includes AC and DC wiring, String Sizing and introduction to Sunny WebBox.

Thursday

At SOLAR 2008 Conergy worked with ASES to organize the largest professional training event ever! If you're not yet signed up, visit the registration desk or Conergy at booth #401 to learn more.

Thursday, May 8

7:00 am – 8:00 am

Speakers' Breakfast — California

ASES Divisions Committee Meeting — California

ASES International Committee Meeting — California

8:00 am – 12:00 pm

SOLAR 2008 Registration Open — Atlas Ballroom Foyer

8:30 am – 10:00 am

New Tools and Strategies for Green Communities

Royal Palm Three

Moderator: Elaine Hebert, California Energy Commission

As the market demand for environmental responsibility increases, many developers claim that their communities are "green." Often, however, design decisions are made based more on trends or intuition than on meaningful information regarding the environmental and economic implications of design strategies. The development of sustainable communities can benefit from a rigorous analysis of design alternatives. This session will showcase three software tools designed to help planners and developers evaluate and optimize energy and environmental parameters at the neighborhood, community, and regional level. The session will also present a set of technical, market, and policy strategies for energy-efficient community development in California.

Presentations include:

- *Orienting the Neighborhood — Let the Sun Shine In*
Craig Christensen, National Renewable Energy Lab
- *Systems Integration at the Community Scale*
Doug Newman, National Energy Center for Sustainable Communities
- *I-PLACE3S — Internet-Planning for Community Energy, Economic, and Environmental Sustainability*
Nancy McKeever, California Energy Commission

Spirit and Sustainability

San Diego

Moderators: Dave Panich and Paulette Middleton

Take a break from the hustle and bustle of SOLAR 2008 to give a swift lift to your spirit. Join us for an engaging session of sharing, brainstorming and spirit lifting.

The forum begins with inspirational comments from Michael Connolly Miskwish of the Compo Band of the Kumeyaay Indians.

Next, attendees will have up to two minutes of "rapid reflection" on one of these questions:

- What does sustainability mean to you?
- What is the Earth saying to you?
- What would you say to a Presidential candidate in your 30-sec elevator ride together?
- What is in your happiness bag?

Before reentry into the exciting pace of the conference, the forum concludes with some light conversation about what the group as a whole has presented and some fun and relaxing meditation. Bring your ideas; bring your spirit.

Solar Energy Enters into UN Climate Change Negotiations

Golden West

Moderator: Ron Swenson, EcoSage Corporation

Until now, the solar and renewable energy communities have not played a major role in formulating the UN Framework Convention on Climate Change (UNFCC). This forum will address the potential of solar energy to mitigate climate change and how the solar community can participate in the negotiations for climate change initiatives that will be put in place after the Kyoto protocol expires.

Presentations include:

- *Solar Energy Enters into UN Climate Change Negotiations*
Ron Swenson, EcoSage Corp
- *Status of Renewable Energy on the UNFCCC Agenda*
Chuck Kutscher, National Renewable Energy Lab
- *Monetizing the Loss of Ecosystems Services*
Allan Baer, President, SolarQuest, Inc.
- *The Solar Grand Plan and the UNFCCC*
Ken Zweibel, President, American Solar Action Plan
- *Converting Transportation Networks into Solar Collectors*
Bill James, President, jPods Corp.

State Solar Policy Initiatives — Recent Developments and Lessons Learned

Royal Palm Four

Moderator: Mark Sinclair, Clean Energy States Alliance

As states seek to develop a sustainable solar market, common strategies have emerged to overcome the financial, regulatory, and institutional barriers to solar deployment. In this session, policy experts will report on the latest and greatest in state initiatives to: include solar in the electricity mix; target high-value solar applications; market solar to the consumer, and drive down solar PV costs.

Presentations include:

- *Introduction — Recent Developments in State Policy Support for Solar*
Mark Sinclair, Clean Energy States Alliance
- *New York State — Building a Local Solar Market*
Vicki Colello, NYSERDA
- *California Solar Initiative — Progress Report*
Sanford Miller, Renewable Energy Program, Lead, New Solar Homes Partnership, California Energy Commission
- *New Jersey Solar Policy Innovation*
Scott Hunter, Renewable Energy Program Administrator, NJ Office of Clean Energy, NJ Bureau of Public Utilities
- *Use of Renewable Portfolio Standards to Advance Solar*
Ryan Wiser, Lawrence Berkeley National Lab

Agriculture and Water Issues Technical Session

Royal Palm Two

Session Chair: David Renné, National Renewable Energy Lab

Solar Water Desalination System for Coastal Villages
J. Goswami and H. Ingley, University of Florida

Solar Water Distillation by a Simple and Low-Cost Humidification-Dehumidification Method
N. Mitten and H. Ingley, University of Florida

Performance Assessment of Single Slope Passive Solar Stills of Different Cover Inclinations by Thermal Modeling — Validation on Both Solstice
A. Tiwari, National Institute of Technology, India


Photo courtesy Mother Earth News and Sunworks Solar

Last year the ASES National Solar Tour hosted over 115,000 visitors, who toured more than 5,000 buildings in 46 states, including D.C. and Puerto Rico, involving more than 10,000 volunteers!

Be part of the GROWING renewable energy revolution!

Saturday, October 4, 2008

The ASES National Solar Tour is the premier event where neighbors share how solar, wind, hydro, conservation techniques and passive solar technologies are making a huge difference in saving energy on a personal level!

To learn more and be a part of this growing phenomena visit:

www.NationalSolarTour.org

Sponsored by

American Solar Energy Society's National Solar Tour www.NationalSolarTour.org Real Places for Real People

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SOLAR TODAY

U.S. Department of Energy Energy Efficiency and Renewable Energy

Trina

SunTechnics

SOLAR 2008

SOLAR 2008 Conference Proceedings

SOLAR 2008 Conference Proceedings CD-ROMs will be sent to all conference registrants following the end of the conference. This allows ASES to add significant value to the disk, including **all** conference papers, presentations and the final attendee list (saving lots of trees!)

This is, of course, in addition to the usual comprehensive content you're used to seeing.

So you'll have more SOLAR 2008 to look forward to after you get home.

Thursday, May 8

8:30 am – 10:00 am *(continued)*

Water Quality, Freezing, Safety and Back-up Issues Technical Session

Royal Palm One

Session Chair: Jane Davidson, University of Minnesota

Scale Formation on Polypropylene and Copper Tubes During Open-Loop Exposure to Mildly Supersaturated Potable Water
Z. Wu, L. Francis and J. Davidson, University of Minnesota

Protecting Solar Water Heating Systems from Freezing, Stagnation & Scalding — Interim Experience from San Diego's Solar Water Heating Pilot Program
S. Fralick, California Center for Sustainable Energy

Should Electric Storage Water Heaters be the Preferred Backup for Solar Water Heating Systems in Low-Energy Homes?
E. Lee, Davis Energy Group/Harpiris Energy

Preliminary Modeling, Testing and Analysis of a Gas Tankless Water Heater
J. Burch, National Renewable Energy Laboratory; J. Thornton, TESS, Inc.; M. Hoeschele and D. Springer, Davis Energy Group, Inc. and A. Rudd, Building Science Corporation

Expanding Educational Efforts Technical Session

Royal Palm Five

Session Chair: Elizabeth Lewis, Florida A&M University

Implementing the 2010 Imperative in a Beginning Architectural Design Studio
T. Peters, California Polytechnic State University

Learning from the Solar Decathlon — High Performance Building Design, Operation and Evaluation
R. Peña, University of Washington

The PRIME Evaluation System — a Student Developed Eco Analysis Tool
J. Epp, P. La Roche, M. Fox, E. Ezell, L. Felton, R. Hansanuwat, M. Lyles, Y. Oo and G. Van Leuwen, California State Polytechnic University

An Exploration of Glazing Systems for Low Cost, High Performance Housing in Tijuana, Mexico
A. Jeerage, M. Schiler and T. Spiegelhalter, University of Southern California and P. La Roche, Cal Poly Pomona

Founded in 1954, the American Solar Energy Society (ASES) is now supported by more than 11,000 members across the nation who work together to help create a sustainable energy economy. Combined with ASES' regional chapters in 37 states and as the U.S. section of the International Solar Energy Society we're part of a powerful, collaborative network.

Solar Success! Training Event

Thursday, May 8

10:00 am – 11:50 am

Magnum — Our Products, Applications and Feature Benefits

Sheffield

Presenter: Gary Baxter, Sales & Marketing

Training will cover all models and accessories, their application and use in system applications. System programming including Auto Gen Start and Battery Monitor and system troubleshooting will also be covered.

UniRac Solutions — From Basic Racking, Attachment Alternatives and Code Compliance to Quoting and Estimating

Garden Salon Two

Presenter: Andy Davidson, Applications Engineering Manager

This session will provide introduction and basic training including: basic racking components; layout basics; Unirac products and installation solutions; attachment alternatives; engineering documentation, including code compliance; installation techniques and quoting & estimating.

Solar Industry Outlook — Market, Technology and Supply

Garden Salon One

Presenter: Anthony Fotopoulos, Managing Director, Conergy Inc. (USA)

Is there going to be a glut of silicon soon? Where are all the modules going? Are thin films "ready for prime time"?

These are just some of the questions that will be answered in the "Solar Industry Outlook — Market, Technology and Supply" session. In a short two hours, we will take a whirlwind tour of global and U.S. supply, demand and technologies. We'll start with an in depth walk through the global solar supply chain to uncover what is happening to silicon and what volume will be available over the next few years. Global markets and economics will be discussed to understand where modules will flow, and what will be available for the U.S. Lastly, current and future solar module technology will be discussed, with special emphasis paid to thin film suppliers that are having an impact globally and those of which can impact the U.S. market. This session will provide a solid overview on the fundamentals of what will drive solar globally and in the U.S. over the next several years.

1:00 pm – 2:50 pm

Sanyo HIT Double (Bifacial) Technology

Hampton

Presenters: Benjamin S. Collinwood, Market Development Manager & Robert Zerner, Market Development Specialist

Gain knowledge about the unique features of SANYO's new HIT Double (bifacial) technology and modules. The features of HIT Double bifacial technology will be explored, including; attributes, operating characteristics, electrical and mechanical specifications, performance, construction (of both cells and modules), appropriate uses and applications, its unique selling points, affect on rebates, upcoming product changes, and comparison to other HIT solar technologies.

The Evolution of PV Module Grounding, Wiring, and Site Evaluation — An Introduction

Sheffield

Presenter: Palvin Chan, Mechanical Engineer

Join us for an introduction to innovative balance of system products for PV installers. Wiley Electronic's engineers will demonstrate industry-accepted products – the WEEB Grounding Clip and WEEB Lug – designed to make your installations easier, safer, and less expensive. We will also look at improved wiring methods using the newly released Acme Conduit Entry (ACE) and Acme Cable Clips, and a digital PV site evaluation using the ASSET tool and software.

Workshop Outline:

- Mechanical and electrical PV design and installation using the WEEB Grounding Clip and WEEB Lug
- Wire routing and transition from USE-2 or PV wires to THWN wires using Acme Conduit Entry & Cable Clips
- Digital PV Site Evaluation using the Acme Solar Site Evaluation Tool (ASSET)
- Bringing new products to the PV Market — the challenge of change, safety issues, and acceptance

Thursday, May 8

10:30 am – 12:00 pm

An Update on the Status of Renewable Energy Forecasting

Royal Palm Three

Moderator: Bart Nijssen, Ph.D., Chief Technology Officer, 3TIER

The generation of electrical power based on weather-driven renewable energy has characteristics such as intermittency and non-dispatchability that complicate its integration into existing generation and distribution networks. Accurate and reliable forecasts of energy production can facilitate this integration. Recent experience with the development and application of wind forecasts can provide important lessons for the development of solar forecasting techniques. This forum will bring together experts from academia, government, and private industry to discuss the current status of renewable energy forecasting as well as opportunities and challenges for the development and operational delivery of solar energy forecasts.

Presentations include:

- *An Update on the Status of Renewable Energy Forecasting*
  Bart Nijssen, Ph.D., Chief Technology Officer, 3TIER
- *Operational Forecasting for Renewable Energy Projects*
  Eric Grimit, Ph.D., Director of Forecasting, 3TIER
- *Solar Resource Forecasting Methodologies*
  David Renné, Ph.D., National Renewable Energy Laboratory
- *Solar Forecast Evaluation in the IEA Task 36*
  Richard Perez, Atmospheric Sciences Research Center, State University of New York
- *Ground Truth Verification of Resource Forecasts*
  James Bing, PE New Energy Options, Inc.

Climate Change — Ethics, Politics, and Energy Behavior

San Diego

Moderator: Barbara Farhar, National Renewable Energy Laboratory (Ret.), University of Colorado (Adj.)

Climate change involves significant ethical and moral considerations. The Intergovernmental Panel on Climate Change states that the developing world will be more negatively affected than will the developed world by rising sea levels, lack of water, changed weather patterns such as hurricanes and droughts, and other negative impacts of global warming. The technical solutions to mitigating this situation are well-defined and attainable. Adaptation to these impacts is less well understood. A crucial issue is whether the currently-living generations in developed and rapidly developing countries — and their institutions — will recognize and act upon the moral imperatives of the global warming crisis. The forum speakers will address this problem from diverse standpoints, including the politicization of the global warming debate, the difficulty of assigning international responsibility, and the emergent coalition of climate scientists and evangelicals. As the moral dimensions of climate change are more completely understood and acknowledged, a shift in energy behavior will occur. Panel presentations will be followed by facilitated discussion.

Presentations include:

- *Eden's Covenant — A Judeo-Christian Environmental Ethic*
  Robert H. Walker, Senior Pastor, Peachtree Baptist Church
- *Changing Public Opinion on Climate Change*
  Andrea Cook, Climate Change Manager, California Center for Sustainable Energy
- *Climate Change as a Human Rights Issue*
  Lesley K. McAllister, Ph.D., J.D., Associate Professor, University of San Diego School of Law
- *Your Life, Your Planet, Your Choice*
  Barry Butler, Owner, Butler Sun Solutions

Two Global Presentations — How to Get to the Renewable Energy Future

Golden West

This forum session will feature two speakers who will describe the key global summits held to advance renewable energy this spring. Descriptions of the events, the visions presented and how they will impact the American market will be presented.

- Michael Eckhart, President, American Council for Renewable Energy

Michael will report on the Washington International Renewable Energy Conference. Billed as the "most important Ministerial level conference ever held in the U.S." this event should set the stage for new international cooperation to advance deployment of renewable energy technologies.

- Brad Collins, Executive Director, American Solar Energy Society

Brad will report on the MASDAR initiative and the $15 billion dollar effort by the government of Abu Dhabi to create a sustainable and zero-carbon city, establish a world class renewable energy university and create a manufacturing base in the UAE for global clean energy companies.

Questions will be taken from the audience after the presentations.

Testing and Monitoring of Solar Thermal Systems and Components Technical Session

Royal Palm One

Session Chair: Jay Burch, National Renewable Energy Lab

Real World Testing of Medium Temperature Solar Thermal Collectors
B. Raichle, Appalachian State University

Performance Characteristics of Evacuated Tube Heat Pipe Solar Collectors
D. Goodman, Purdue University

Solar Water Heating Field Monitoring
W. Bennett, Energy Consulting Associates, LLC

A Low-Cost Power Meter for Solar Hot Water Systems
B. Butler, R. Davenport, and B. Butler, Butler Sun Solutions

Self-Pressurized, Thermally-Protected Closed Loop Solar Hot Water System
B. Butler and B. Butler, Butler Sun Solutions

Discharge Experiments in an Initially Stratified Vertical Storage Tank with an Immersed Baffled Heat Exchanger
J. Haltiwanger and J. Davidson, University of Minnesota

Cool Strategies for Hot Buildings Technical Session

Royal Palm Five

Session Chair: Pablo LaRoche, CalPoly Pomona University

Four Cutting-Edge Near Zero Energy Home Prototypes — Research Findings from 2 Years of Detailed Monitored Data Reported
B. Baccei, A. Cubano and J. Ching, ConSol/BIRA

A Comparison of Computational Fluid Dynamic Simulations and Actual Performance of a Classroom Achieving 100% Cooling Through Night Ventilation of Mass
G. Brown, D. Chavez, D. Northcutt and J. Stenson, University of Oregon

Post-Occupancy Monitoring of the Double-Skin Façade
S. Harntaweewongsa and M. Navvab, University of Michigan

Thursday, May 8

1:00 pm – 2:50 pm *(continued)*

Xantrex Off-Grid Products — XW Series, Trace Series, DR Series
Garden Salon Two

Presenters: Lloyd Gomm, Director, Marketing, Solar & Backup Power & Erika Yedid, Product Application Engineer, Solar & Backup Power

Designed for easy installation, long-term performance and reliability, the Xantrex Off-Grid products are an efficient, cost effective choice of power inverter for homes and buildings – off-grid and remote applications. The XW System can be installed with a variety of renewable energy sources such as solar, wind, and hydropower. The Trace Series is excellent for backup power remote applications. Learn about the features and benefits of the XW and Trace Series and how to install them.

The Art of Integrated Event Marketing — Maximizing your Investment
Garden Salon One

Presenters: Jyl Safier, Conergy Marketing Operations Manager, Jaymie Fuentes, Conergy Marketing & Events Coordinator and Kevyn Claerhout, Jack Nadel International Sr. Account Manager

Did you know that event marketing is one of the least expensive methods for generating quality leads and sales? Join us to learn some creative "tricks of the trade" to ensure you get the most out of your events. Discussion topics include: selecting the right shows to maximize your investment, setting measurable event goals and objectives based on target audience, defining your core event messaging, and integrating PR, promotions and direct marketing programs: pre-show, at-show and post-show.

3:00 pm – 4:50 pm

MidNite BOS Products and the Classic
Hampton

Presenter: Robin Gudgel, President

We will go over features and differences in all of the MidNite E-Panels. The E-Panel is quite flexible and soon will be able to stack up to 4 OutBack or Magnum inverters with the use of our NottaGutter. PV combiners and the MNDC will be discussed. The use of extensive system installation pictures gives a good indication of what to expect. The last part of the training will be a peek into the Classic MPPT controller for Solar, Wind and Hydro. This controller will set a new standard for MPPT controllers that will be hard to follow.

Fronius IG and Monitoring Solutions
Sheffield

Presenters: Brian Lydic, Application Engineer & Sean Hickey, Southwest Regional Sales Manager

Fronius IG inverters & data communications applications for residential and commercial grid-tie PV systems. Overview of inverter model offering, datcom monitoring components, applications, set up, installation and trouble shooting

New Commercial-Scale Mounting System Solutions
Garden Salon Two

Presenters: Don Massa, Product Manager, Mounting Systems, Dustin Haddock, Director & Rob Haddock, Manager, Product and System Development

In this session you'll learn about Conergy's new mounting solutions for standing-seam metal roofs and ground-mounted arrays. Included will be introductions to Conergy's new SolarGiant fixed tilt array and the SolarRoller single-axis tracker.

Customer and Job Management — Generate Estimates, Analysis and Proposals...in Minutes!
Garden Salon One

Presenter: Scott Cronk, Director, Partner Tools, CleanPowerFinance

Learn how CPF Tools can help you reduce costs, save time and do more business. We'll show you how to convert leads into jobs, generate estimates for any residential or commercial solar project, produce professional proposals and initiate and track financing for your customers all within a single web-based solution. CPF Tools maintains up-to-date utility rates, incentives and equipment lists for all major solar markets, so creating an estimate takes minutes instead of hours. Learn how to size & optimize your systems based on energy demand, output, customer budget, available space and peak performance. Perform financial analyses based on internal rate of return, cash flow, system payback & resale value and levelized costs. Create customized proposals with your company's logo & contract terms and send proposals to customers at the push of a button, via web, email or print. And then let CPF Tools help you maintain the momentum of the project by submitting & tracking your solar prospects for financing. From interest to installation, CPF Tools puts you in the driver's seat and helps you do more business today.

Thursday, May 8

12:30 pm – 2:00 pm

Conference Closing Luncheon — Town & Country

Enjoy a special presentation by Bracken Hendricks, Senior Fellow at the Center for American Progress. Then we'll wrap up the conference with a few surprises and show you what we have in store for SOLAR 2009 – being held in Buffalo, New York in May, 2009.

INCLUDED in full conference registration

Extra ticket price: $65.00

2:00 pm – 5:00 pm

Tour - Ridgehaven Building & IBEW PV Training Center – T07 — Off-site

Registration price: $50.00

Tour Guide: Maggi Veltre, San Diego Renewable Energy Society

The Ridgehaven Building is unique as one of San Diego's first green building retrofit projects in the mid-90s. It serves as the headquarters for the San Diego City Environmental Services Department, whose mission is to act as a model and catalyst for other city-wide green programs. It features an educational lobby display and has a 50kW photovoltaic rooftop system. It has a unique value in being able to compare its energy usage with that of an identical office building nearby. The results are impressive. Almost across the street from the Ridgehaven Building is the IBEW #569 (International Brotherhood of Electrical Workers) training center, which has a large (and growing) PV array on the roof. See the standards of craftsmanship of these electricians.

3:00 pm – 6:00 pm

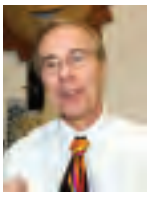
ASES Board of Directors Meeting — Windsor Rose

Albert Einstein won the Nobel Prize in 1921 for his experiments with solar power and photovoltaics. (Thanks to SunPower for this bit of trivia.)


DAN BIHN

Awards Presented at SOLAR 2008

American Solar Energy Society Awards



The Charles Greeley Abbot Award is presented to an individual who has made a significant contribution to the society or to the field of solar energy. **Dr. Lawrence L. Kazmerski** is recognized around the scientific world as a leading researcher and visionary in the field of photovoltaics (PV). Working at the National Renewable Energy Lab for over 25 years, he heads the National Center for Photovoltaics. He has worked in the laboratory and the classroom and reached out to government officials and business leaders alike to promote the development of PV. In 2007 he received an R&D 100 award for development of the first solar cell to break 40 percent conversion efficiency. This is a powerful new technology for designing super efficient multi-junction solar cells. Known to his peers as a scientist with a heart and a sense of humor, we congratulate Larry Kazmerski as this year's Abbot Award winner.

The Passive Solar Pioneer Award honors a person whose pioneering work in the passive solar energy field has set the stage for others to follow. **David Wright** began his career in low-energy buildings with service in the Peace Corps, first in Tunisia and then in Guinea. One of his first passive homes was built in Santa Fe in the late 70s, a direct-gain building utilizing distributed thermal mass of adobe with exterior and movable insulation systems. He has since designed and built more than 300 residences and commercial buildings, always incorporating the ideals of environmentally sound land use and planning and a commitment to resource conservation. His book *Natural Solar Architecture: A Passive Primer* is well known. Over the years he has served on architectural award juries, lectured at numerous schools and served on committees, task forces and boards of directors. Because his career continues as it began, with a commitment to sustainable living and building, we are proud to honor David Wright as our 2008 Passive Solar Pioneer Award winner.

The Hoyt Clarke Hottel Award honors someone who has made a significant contribution to technology in any area of the solar energy field. **Dr. Geoffrey Lester Harding**'s multinational contributions in the field of solar thermal heating have helped pioneer a solar thermal industry bringing affordable hot water to the ordinary Chinese citizen. His development of direct current (DC) magnetron sputtering technology enabled rapid and reproducible coating on non-selective surfaces used on all-glass evacuated collectors. He is respected for his innovation, his attitude and his precise working style. In training young technicians he stresses the importance of analyzing and solving problems scientifically. Always generous and patient in sharing his extensive knowledge of solar selective coating and solar thermal applications he is most deserving of the 2008 Hottel Award.

ASES' **Women in Solar Energy Award** was designed to recognize a woman who has contributed significantly to the acceptance and advancement of women in solar by any of the following means: advocacy, education, technical efforts, contracting or implementing social change. This year the award honors **Alison G. Kwok,** who is recognized as a gifted teacher of building physics and design studios at the University of Oregon, where she has mentored students, especially women, to embrace the technical and cultural aspects of sustainable design. Early in her career she worked on the Vital Signs Program and from those efforts was awarded a $500,000 FIPSE grant for the Agents of Change Project. Both of these projects have influenced hundreds of architecture professors and their students. More recently she has co-authored *Mechanical & Electrical Equipment for Buildings*, 10th edition, John Wiley & Sons and *Green Energy Handbook* by Architectural Press. Alison embodies the pursuit of excellence in environmental design and leadership as mentor for future professionals as our 2008 WISE Award winner.

The Rebecca Vories Award recognizes special contributions to the American Solar Energy Society. It honors those whose volunteer efforts on behalf of the society have significantly advanced ASES' ability to meet its mission. **Glen Friedman** began volunteering at ASES conferences in the 1980s and quickly moved up to take over the Volunteer Coordinator position. Glen continued his contribution to ASES by chairing both the Buildings Division and the Ethics and Member Concerns Committee. He has served on the ASES board of directors and is past president of the Solar Oregon chapter. He has been a steady, reliable voice of reason and good humor in all of these endeavors. He currently shares his expertise with ASES in writing and reviewing grant proposals. ASES is fortunate to have had the benefit of Glen's commitment to renewable energy and is proud to present him the 2008 Rebecca Vories award.

The John and Barbara Yellott Award is given to a graduate student concentrating on solar energy in a recognized institution of higher learning. **Frank W. Burkholder** is currently a Ph.D. student in the Building Systems Program in the Department of Environmental and Architectural Engineering at the University of Colorado, Boulder. His thesis topic is *Investigation of Mixed-Gas Heat Conduction to Mitigate Hydrogen-Induced Heat Loss in Annular Receiver Geometrics*. He is highly praised by the scientists he is working with at NREL where he is contributing to the DOE Concentrating Solar Power Program. He also participated in the 2007 Solar Decathlon as the team's main engineering analyst. Frank has a promising future and we hope he directs his many abilities in the direction of the sun.

The Government Leadership Award recognizes an individual's contribution within government to move us toward a sustainable energy future. This award honors local, state or federal government officials who have successfully advanced energy efficiency and/or renewable energy through program development, legislation or education. The 2008 award honors **Richard King,** Manager of the Solar Decathlon for the U.S. Department of Energy. Richard conceived, promoted and managed this extraordinary demonstration of our sustainable energy future presented biennially on the Washington Mall. His efforts have helped to raise the energy IQ of hundreds of students and tens of thousands of Americans.

Awards Presented at SOLAR 2008

The following members were named Fellows of the American Solar Energy Society. The ASES Fellow designation recognizes longtime ASES members who have provided exceptional service to the Society.

Jay Burch, a senior physicist at the National Renewable Energy Laboratory since 1982, has a stellar reputation for scientific inquiry and interdisciplinary cooperation. He has published more than 50 papers in the building science and solar thermal area, many of them at ASES conferences. He has served on the board and standards committee of the Solar Rating and Certification Corporation, helping develop policies, rating protocols and fair assessments of solar water heating systems. While mentoring students he has shared his enthusiasm for the amazing potential and subtle complexities of low temperature thermal applications.

Randy C. Gee began his 30 year solar career at the Solar Energy Research Institute where he worked on solar industrial heat processes. He then co-founded Industrial Solar Technology (IST) where they produced a parabolic trough collector system far below the current cost. These systems have been working for over 20 years. Randy and his partner at IST, Ken May, were presented the Hoyt Clarke Hottel Award in 2000. Randy moved on to become the director of research and technology at Solargenix, bringing to fruition his goal of large-scale solar applications when Nevada Solar One, the 64 MW solar power plant began operating near Las Vegas in 2007. Randy has also served on the ASES board of directors.

Walter Grondzik has distinguished himself as an educator and an author for over 30 years. *Mechanical & Electrical Equipment for Buildings*, 10th edition, John Wiley & Sons, 2006, for which he is co-author, is a major textbook used in architectural schools to teach environmental control systems. In 2007 he co-authored *The Green Studio Handbook: Environmental Strategies for Schematic Design*, Architectural Press. The focus of his research has been to translate the understanding and practice of building systems and components into the classroom of architectural education. He has educated and inspired hundreds of students in the design of buildings. He has served important roles at ASES conferences. He has been a member of four national organizing committees and twice chaired the Passive Conference technical committees. Walter has organized numerous forums, chaired sessions, and presented over twenty-five papers at ASES conferences. He is currently Chair of the ASES Meetings and Conferences Committee.

Bion Howard has been a strong advocate for solar energy since the late 1970s. His passion for, and expertise in, passive solar energy were key factors for the inclusion of passive solar energy as a focal point for many national organizations. At U.S. EPA Howard assisted in formulating several Energy Star™ programs. At Alliance to Save Energy in Washington, DC, he developed and obtained multi-year funding for the "Building Codes Assistance Program" (BCAP), and served on behalf of the Alliance in U.S. Green Building Council (USGBC), as a founding member. At the National Association of Home Builders (NAHB) he managed the "Thermal Performance Guidelines" program and promoted early "energy efficiency mortgage" guidelines. He effectively championed high-mass and air-core with the National Concrete Masonry Association. He was appointed in 2005 to the National Residential Energy Services Network (RESNET.org) Technical Standing Committee, which develops Home Energy Rating System (HERS) standards and guidelines working with the home mortgage and construction industry. In U.S. Green Building Council, he has served on the LEED Energy & Atmosphere Technical Advisory Group (TAG) since inception. During this time he has volunteered in numerous ways to advance the mission of ASES.

John Wiles has worked tirelessly for more than two decades to address the technical and non-technical issues related to performance, safety standards, and code requirements so that photovoltaic systems could be legally and safely installed in compliance with the National Electric Code (NEC). His tireless devotion to the support of codes and standards has brought us the mature infrastructure we take for granted today. Without this underpinning, the explosive growth of PV deployment in the U.S. would not be possible. John also trains installers, code officials and others on PV. He brings a no nonsense, fact filled presentation that is much appreciated by the hands-on oriented audience. He currently serves as Secretary of the PV Industry Forum that proposes changes to the NEC. He drafted text for Article 690 in the 2005 NEC and 2008 NEC Handbooks. He has made measurable contributions to the advancement of solar energy and is most deserving of the ASES Fellow recognition.

Members of the American Solar Energy Society Board of Directors

Members of the Board of Directors of the American Solar Energy Society are elected or appointed for 3 year terms. Members attend board meetings, chair committees, lend their technical expertise and knowledge to innumerable ASES projects, and generally provide support to and governance of the Society.

We would especially like to honor and thank five Board Members whose terms ended December 31, 2007.

They are:

Randy Gee
Sue Hock
Joe O'Gallagher
Richard Perez
Thomas Starrs

Awards Presented at SOLAR 2008

SBSE Awards

The Society of Building Science Educators (SBSE) provides travel support for students who present papers at the American Solar Energy Society (ASES) conference. These travel awards are made possible through donations from Jane and Fuller Moore and John Reynolds. This year ASES offered reduced student registration for these students. The following students received travel awards this year:

Rael Berkowitz, Cal Poly Pomona

James Cleveland, University of Southern California

Serena Coltrane-Briscoe, University of Oregon

David Douglass, University of Southern California

Benjamin Futrell, University of North Carolina at Charlotte

Laura Haymond, University of Southern California

Siritip Harntaweewongsa, University of Michigan

Emily Meier, University of Oregon

Akram Rosheidat, Arizona State University

Mehmedalp Tural, Arizona State University

Kyocera's 235-kilowatt solar carport, or Solar Grove, is located in San Diego at Kyocera's North American headquarters.


SACRAMENTO MUNICIPAL UTILITY DIVISION

SOLAR 2008
Participating Organizations

The American Institute of Architects (AIA) has represented the professional interests of American architects since 1857. The Committee on the Environment is the Institute's forum for the compilation, exchange and dissemination of environmental information integral to the design and practice of architecture. http://www.aia.org/cote

The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) is an international organization of more than 55,000 people, with chapters throughout the world. ASHRAE is organized for the sole purpose of advancing the arts and sciences of heating, ventilation, air conditioning and refrigeration for the public's benefit through research, standard writing, education and publications. http://www.ashrae.org/

The Interstate Renewable Energy Council (IREC) has been working for over two decades as a non-profit organization committed to moving renewable energy resources into the marketplace by focusing on state and local governments and communities. IREC emphasizes education and outreach, stakeholder coordination, technical assistance, workforce development, the adoption and implementation of uniform guidelines and standards, consumer protection, and building networks to share experiences and information. http://www.irecusa.org/

The Rahus Institute is a 501c3 non-profit, research and educational organization with a focus on resource efficiency. The primary goal of The Rahus Institute is to accelerate the implementation of resource efficient technologies and practices through research, development, demonstration, education and policy change. The Insititute is currently developing projects that aim to promote the use of renewable energy in California. http://www.rahus.org/

The San Diego Roofing Contractors' Association (SDRCA) has been serving the Roofing Industry for over forty years. It is the intent of this Association to establish and maintain professional standards and practices in the Roofing Industry through education and public awareness. Our members are committed to excellence and they use the benefits offered by the Association to help obtain this goal. The SDRCA encourages you to become fully aware of the potential problems of dealing with an unlicensed, uninsured roofer. http://www.sdrca.com/

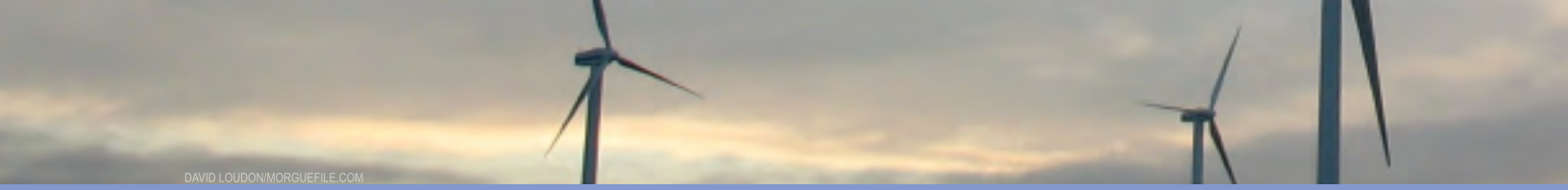
The Society of Building Science Educators (SBSE) is an international association of university educators and practitioners in architecture and related disciplines who support excellence in the teaching of environmental science and building technologies. SBSE publishes a newsletter and conducts annual retreats and workshops. http://www.sbse.org/

The Solar Electric Power Association (SEPA) is a collaboration of utilities, energy service providers and the photovoltaic industry, working together to create and encourage commercial use of new solar electric power business models. SEPA helps to establish standards for photovoltaic systems and their interconnection to the utility grid, hosts cross-industry workshops, and manages educational and outreach campaigns. http://www.solarelectricpower.org/

The Solar Energy Industries Association (SEIA), is the national trade association of solar energy manufacturers, dealers, distributors, contractors, installers, architects, consultants, marketers and end users. http://www.seia.org/

The Solar Rating and Certification Corporation (SRCC) provides independent certification, national recognition, product credibility and standardized comparisons of solar energy products. SRCC programs serve three primary constituencies—the solar energy industry, solar consumers and state and federal regulatory bodies. http://www.solar-rating.org/

The U.S. Green Building Council (USGBC) is the nation's foremost coalition of leaders from every sector of the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work. Our more than 9,000 member organizations and our network of 75 regional chapters are united to advance our mission of transforming the building industry to sustainability. http://www.usgbc.org/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Thank You!

The National Solar Conference is created each year by many, many people. Organizing committee members, workshop presenters, ASES Chapter representatives, Forum Organizers and moderators, technical paper authors and session chairs, and all of the companies who sponsor, exhibit and conduct training sessions have made the National Solar Conference possible for the past 37 years. We express our deepest gratitude to all!

SOLAR 2008 National Organizing Committee

Chair: Margot McDonald, CalPoly San Luis Obispo

David Bainbridge, Alliant International University

Harvey Bryan, Arizona State University, Passive Technical Review Committee Chair

*Becky Campbell-Howe, American Solar Energy Society

Richard Caputo, San Diego Renewable Energy Society

Eric Clifton, U.S. Green Buildings Council

*Brad Collins, American Solar Energy Society

*Trudy Forsyth, National Renewable Energy Lab, Golden, CO

Kira Gould, AIA Committee on the Environment

*Walter Grondzik, Florida A&M University, ASES Meetings and Conferences Committee Chair

*Elaine Hebert, California Energy Commission and NorCal Solar

Bruce Hunn, ASHRAE

Deris Jeannette, Clear Dome Solar, San Diego Renewable Energy Society

Charlie Johnson, San Diego Renewable Energy Society

Coral Mills, Redwood Empire Solar Living Association

Les Nelson, Solar Rating and Certification Corporation

Richard Perez, ASRC, University of NY at Albany, Annual Technical Review Committee Chair

*John Reynolds, University of Oregon

Bruce Rogow, San Diego State University, San Diego Renewable Energy Society

*Blanche Sheinkopf, The Sheinkopf Group, Energy Smart Schools

*Tom Starrs, Iberdrola Renewables, Fundraising Chair

Irene Stillings, California Center for Sustainable Energy

*Jane Weissman, Interstate Renewable Energy Council, Policy and Marketing Technical Review Committee Chair

Claudia Wentworth, Quick Mount PV and NorCal Solar

*Byron Winn, Solar Rating and Certification Corporation

*also participated on the Forum Selection sub-committee

Annual Technical Review Committee

Chair: Richard Perez, ASRC, University of NY at Albany

Tom Diskin, College of San Mateo, San Mateo, CA

Jim Green, National Renewable Energy Lab, Golden, CO

Tom Lane, ECS Solar, Gainesville, FL

David Renné, National Renewable Energy Lab, Golden, CO

Ron Swenson, Solar Evolution, Santa Clara, CA

Brian Vick, USDA-ARS, Bushland, TX

Passive Technical Review Committee

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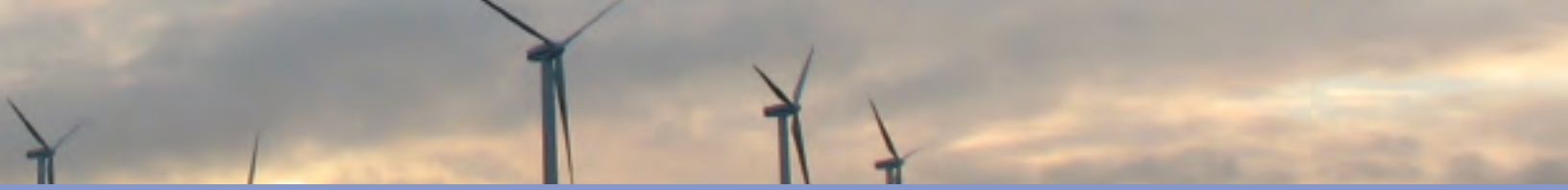
Dennis A. Andrejko, American Insitute of Architects, Williamsville, NY

Bruce Haglund, University of Idaho, Moscow, ID

Pablo LaRoche, CalPoly Pomona University, Pomona, CA

Beth Lewis, Florida A&M University, Tallahassee, FL

Paulette Middleton, Panorama Pathways, Boulder, CO



Thank You!

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Chair: Jane Weissman, Interstate Renewable Energy Council

Sue Gouchoe, North Carolina Solar Center – DSIRE, Raleigh, NC

Richard Michaud, Interstate Renewable Energy Council, Boston, MA

Gwen Rose, Vote Solar, San Francisco, CA

Larry Sherwood, Sherwood & Associates, Boulder, CO

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Chair: Richard Caputo, San Diego Renewable Energy Society

San Diego Renewable Energy Society

Pat Dintrone

Skip Fralick

Deris Jeannette

Charlie Johnson

Sagi Kfir

Grazyna Krajewska

Fletcher Miller

Bruce Rogow

Ted Stern

Irene Stillings

NorCal Solar

Elaine Hebert

Claudia Wentworth

Redwood Empire Solar Living Association

Lindsay Dailey

Coral Mills

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On-Site Coordinators

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Daryl Thayer

Karlis Viceps

John Zagunis

Ahmad Abu-Heiba

Janice Arnold

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Diane Basore

Anna Bautista

John Benya

Kelley Benyo

Dale Bickenbach

Laura Blevens

Garry Bowen

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Clem Brown

Gail Burrington

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Delia Caraway

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Anthony Czeck

Mithun Dalal

Cynthia Davenport

Roger Davenport

Donald Deandrade

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Stephen Dula

Katherine Dykes

Rowena Elliott

Scotte Elliott

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Dan Gibbs

Drew Gillett

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Sanjay Gupta

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Guido Hamacher

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Akasha Kaur

Rick Kehret

Jason Keyes

Sagi Kfir

Monya Kian

Jacob King

Bryan Kocol

Grazyna Krajewska

Deepak Kumar Jha

George Lapole

Don Larson

Ethan Lipman

David Lock

Lynda Marika

John Martin

James Matarese

Yamitza Mendez

Caitlin Mertzlufft

Fletcher Miller

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Tyler Rodgers

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Caleb Saunders

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Mike Senter

Moe Shahram

Sam Shams

Scot Shatwell

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Joe Steinberger

Ted Stern

Irene Stillings

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David Thomas

Leon Thompson

Dena Thornbloom

Maggie Veltre

John Verba

Wade Vernon

Jeanine Walker

Ping Wang

Sean White

Chris Willemin

Rich Winslow

Xin (Eva) Yao

Rick Yelton

Daniel Zarovy

Town and Country Resort Map

RESORT PROPERTY MAP

ASES Business Members

Level I

3Tier Environmental Forecast Group
Absolute Electric & Solar
AC Solar, Inc.
Allsolar Service Co. Inc.
Alter Systems
Alternative Elec. Systems
ASK Construction
Astralux Environmental Solutions
ATAS International Inc.
Atlas Solar Innovations
Bella Energy
Bisco Environmental
Blue Sky Energy Inc.
Brite Idea Energy
Bruce Baccei Consulting
BTU Ventures
Carl Marley
CH_2M Hill, Inc.
Chesapeake Solar, LLC
Clean Energy Design LLC
Clean Power Finance, Inc.
Cool Energy, Inc.
Creative Energies
crSolar
Decker Homes
E3 Construction
Eastern Energy Services
Energy Anew
The Energy Outlet, Inc.
The Energy Store
Ensta Solar Inc.
Garden State Solar LLC
GEO Home Improvments
Global Wedge, Inc.
Go Green Solutions
Greenhouse 2000
Greenline Energy
The Green Building Center
High Noon Solar
Horizon Industries
Hudson Valley Clean Energy Inc.
IMT Solar/Dvsn. Starboard Sun Corp
Inland Energy
Ion Renewable Technology
Island Energy Solutions
Jim Logan Architects
Lamprey Brothers
LGW Energy Resources Inc.
LUMA Resources LLC
Maran inc.
Mary Bauer
Mechanical Energy Systems
MicroScreen, LLC
Monster Electric Inc.
Mountain View Builders LLC
Nalette & Assoc., Inc.
New Age Solar LLC
NJ Solar Solutions, Inc.
North Texas Renewable Energy Inc.
OnGrid Solar
Patriot Solar Group
Pfister Energy
Pioneer Valley Photovoltaics
Powur of Citizenre
Practical Solar, Inc.
Prairie Technologies
Puget Sound Solar
Realign Technologies
Reflectech Inc.
Rohr Constrution
Simple Solar Systems
Single Tree Power and Lighting
SkyFuels
Small Power Systems
Solar Concepts, LLC
Solar Energy Inc.
Solar Financing LLC
Solar Powerworks Inc.
Solar Source
Solar Wind Works
Solar-Force Corp.
SolarH2ot
Solarnetix Inc.
Solectria Renewables, LLC
SolEquity, Inc.
Solorado
Stellar Power & Heating
Sundance Solar Systems
Sundial Energy LLC
SunLink Corporation
Sunstore Solar
SuReAl Group
Sustainable Solutions, Inc.
Third Sun Solar & Wind Power
Torpedo Specialty Wire, Inc.
V2Green, Inc.
Verde Energy
XSUNX

Level II

ABS Alaskan, Inc.
Advanced Solar Electric, Inc.
AET, LLC
Allison Schneider & Harris
Alternative Energy Engineering
Analytic Systems
Blue Square Energy, Inc.
Caudal Solar Products, Inc.
The Cleveland Foundation
Conergy
Direct Power and Water Corp.
Duke Energy
ECD-Ovonics Solar
Energy Innovations, Inc.
Fronius USA LLC
Heliovolt Corp.
Independent Energy Systems
JA Solar USA Inc.
KW Management, Inc.
Kyocera Solar, Inc.
Lakeland Electric
Plan It Solar
Pronghorn Investors
Regridpower
RenewableEnergyAccess.com
SMA America
SMUD
Solar Energy Systems, Inc.
Solar Works
Solargenix Energy LLC
Southwest Windpower Inc.
Standard Renewable Energy
Stiebel Eltron, Inc.
Stoel Rives
Sun Technics
Turner Renewable Energy
Worldwater & Power Corp.
Xantrex Technology Inc.

Level III

Evergreen Solar
Grosolar
GT Solar
Schott Solar

Level IV

Arizona Public Service
Portland General Electric
Sunpower Corp.
Trina Solar Ltd.
United Solar Ovonic

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That's right — Buffalo. Home of the Buffalo Bills and the Buffalo Sabres. Birthplace of Buffalo wings. But there's much more to Buffalo than football, hockey and America's favorite bar food — and that has recent visitors to "The City of Good Neighbors" talking.

You don't have to take our word for it, however. The *Washington Post* called Buffalo "a hip center of arts and performances." The *Atlanta Journal-Constitution* told its readers "the architecture treasures of Buffalo must be seen." The *Chicago Sun-Times* discovered that Elmwood Avenue "bustles with night spots, cafes and shops." *Spirit Magazine* said Buffalo belongs on the "short list of America's greatest food cities."

Buffalo is authentic. For visitors in search of the undiscovered, overlooked and real, Buffalo comes as an unexpected surprise.

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