

California Solar & Storage Association 2019 ANNUAL REPORT



2019

NEW DECADE, NEW GOALPOSTS 1,000,000 SOLAR BATTERIES

In 2006, California set out to build a million “solar roofs”. At the time, the initiative was visionary and audacious, but also highly achievable. By 2019, we hit the goal and then some by building not just the 3 gigawatts called for in SB 1, but three times that amount.

A new decade calls for a new goal: One Million Solar Batteries by 2025.

Solar remains a popular choice for many different types of consumers illustrated by the fact that Clovis, where CALSSA officially celebrated hitting the Million Solar Roofs mark with former Governors Arnold Schwarzenegger and Jerry Brown, has three times more solar consumers than Berkeley. But, it is solar-charged batteries that represent a game changer for us all.

With declining costs, advances in installation, and rapid innovation, solar-charged batteries can transform our energy system, benefiting state power grids and providing customer savings. Bringing on one million solar batteries is a simple, yet revolutionary, way to help reach California’s 100 percent clean energy goal.

California’s success with building a million solar roofs shows us the path to also building a million solar batteries: sustained and consistent government support, protection of policies like Net Energy Metering, eliminating barriers and red tape, and robust incentives to encourage solar battery choices.

If California is going lead the way in clean energy, secure an increasingly unstable grid, and help people keep the lights on, we must think boldly. Leaders’ support for real solutions needs to match their values and rhetoric. One Million Solar Batteries is poised to be California’s next energy breakthrough. Yet, big ideas never just happen. They require sustained commitment from those who champion the cause.

So, let’s keep working together, both on the job site and in the State Capitol, to score another historic clean energy milestone for California and the world.

Thank you for your support of the California Solar & Storage Association.



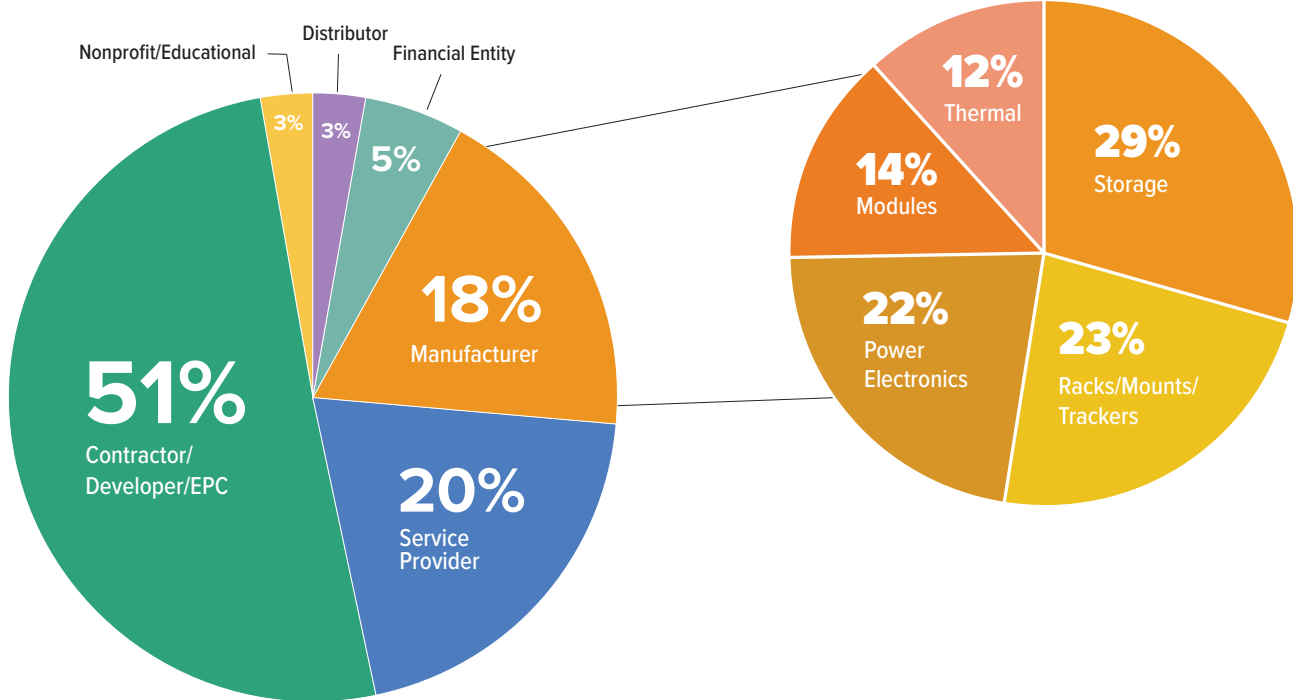
Bernadette Del Chiaro
Executive Director



Ed Murray
Board President

OUR MEMBERS

2019 Members by Business Type



180 Solar Power
A-1 Contractors
A1 Sun, Inc.
A-C Electric Company
ACIP Energy
ACR Solar International, Corp.
Action Energy
ActiveProspect
Adara Power
Advanced Conservation Systems, Inc.
Advanced Microgrid Solutions
AET Solar
Aeterna Energy, LLC
AgEnergy Systems
Aguillon Enterprises LLC
Alameda Electrical Distributors
Albion Power Company, Inc.
ALIVE Solar & Roofing
All Save Energy
All Valley Solar Inc.
Alpha Energy Management Inc.
AlsoEnergy
Altadena Energy & Solar Inc
Altair Solar
Alternative Energy Systems (AES Solar)
Altna Energy Services
Altsys Solar Inc.
Ameco Solar Inc
Ameresco
Amped Solutions, Inc.
Antenna Group
Apex Natural Renewable Generation, LLC
APG Solar
APsystems
Aquatherm Industries, Inc.
Aram Solar Inc.
Arcadia Solar
Arnold Solar Inc
Artwel Electric
ASCC - American Solar Cleaning Company
Aurora Solar
Avalon Battery

AWS Electrical & Solar Inc.
Axiom Exergy
Axis Solar Design
Aztec Solar
B & B Solar Inc
Baja Carport
Baker Electric Home Energy
Barrier Solar Inc.
Base Energy, LLC
BayWa r.e. Solar Systems LLC
Bear Solar Inc.
Belvedere Solar Finance
Berger Solar Electric, LLC
Bland Solar and Air
Blue Planet Energy
Blue Sky Utility LLC
BlueFlame Energy Finance LLC
Boice Dunham Group
Booth Construction
Borrego Solar Systems, Inc.
BPI
Brainart Energy Systems
Bright Power
Brighton Energy
Broadstreet Power
Brooks Engineering
Brown-Hooper International Energy
BTA Solar
Burnham Energy Inc.
BVI Solar
BYD Energy
Byers Solar
Caiman Engineering Inc.
Cal Paso Solar Electric
CalCom Energy
Cali One Services
California Clean Energy LLC
California Solar Electric Company
California Solar Electric Systems, Inc.
California Solar Exchange
CalSolar, Inc.
CalState Solar

Canadian Solar
Canyon Construction Services
Capital City Solar
Capital One
CED Greentech
Cenergy Power
Center for Climate Protection (Solar Sonoma County)
Centrica Business Solutions
Century Roof & Solar
CHERP, Inc.
Chico Electric
Chico Solar Works
Chilicon Power
Chint Power Systems
Cinnamon Energy Systems
Citadel Roofing & Solar
CivicSolar
Clayco Electric, Inc
Clean Energy Group
Clean Energy Jobs List
Clean Solar
CleanSpark
CleanTech Docs, Inc.
CleanTech Energy Solutions, Inc.
CleanView Capital
Climatec, LLC
CNG Solar Engineering
Coastal Constructors, Inc.
Cobalt Power Systems
Combined Energy Technologies
Cool Earth Solar
Corda Solar, LLC
Cosmic Solar
Cross Consulting Services
CSA Group
CSE (Center for Sustainable Energy)
Current Renewables Engineering Inc.
Custom Power Solar
Darfon America Corp.
Davis Wright Tremaine
DBL Partners
Diablo Solar Services

2019 PROGRAM HIGHLIGHTS

Wildfire Response

Local energy took center stage after a series of planned outages and another season of wildfires. CALSSA worked with legislators, reporters and community leaders to make sure they have accurate information about backup power and to develop policy options.

NEM Solar Plus Storage

In January, the CPUC approved our petition to ease restrictions for solar plus storage under net metering. It then took multiple rounds of pushback until the utilities got the right language added to their NEM tariffs.

Self-Generation Incentive Program

CALSSA's 2018 bill – SB 700 (Wiener) – authorized up to \$800 million in additional funds for SGIP. We convinced the CPUC to use the full authority with most of it for energy storage. They added a strong focus on

providing backup power for vulnerable people and critical facilities in fire zones.

We won support for streamlining some of the steps in the SGIP application process, but also had to push back against excessive regulation intended to ensure every storage system reduces greenhouse gas emissions. The new GHG rules were finalized with some of the most difficult provisions pulled out.

Rates

This year was dominated by questions around implementation of previous decisions on TOU rates. We also helped negotiate a deal with SCE to make their residential TOU rate more tolerable for solar customers.

Defending the New Homes Solar Mandate

As we headed toward the beginning of a mandate estimated to lead to 65,000 new solar installations per year, the Sacramento Municipal Utility District proposed to allow homebuilders to buy into existing solar farms rather than putting solar on new rooftops. We convinced the California Energy Commission to reject the first two versions of the proposal.

Consumer Protection

The CPUC continues to press for more rules ensuring consumers are not harmed by unscrupulous contractors. While supporting the overall effort, we convinced the CPUC to back down from unreasonable parts of the proposals,

AVAILABLE SGIP FUNDS

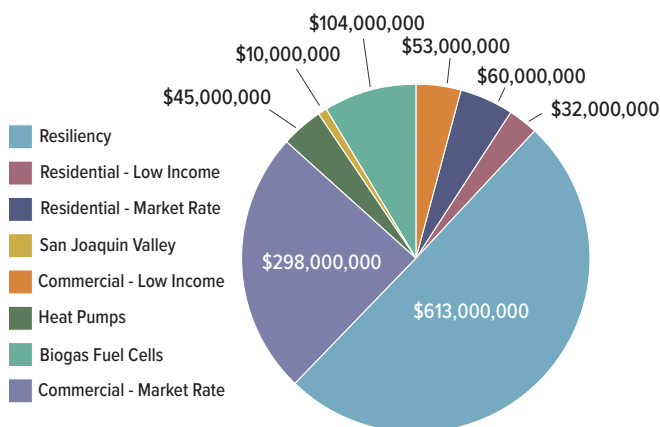




Photo courtesy of Lennar.

such as prohibiting electronic signatures, regulating solar companies through a new registration process, and banning companies from using their own solar savings calculators. We also organized forums in the Central Valley to educate people about solar and resolve outstanding complaints.

Codes and Permitting

When the International Residential Code Committee proposed to restrict the size of residential batteries and where they could be installed, CALSSA defeated the proposal and later won support for more reasonable code updates. We also helped lead efforts to update the California Solar Permitting Guidebook and have been engaged in a storage counterpart. CALSSA's permitting hotline helps members respond to cases where local officials are misinterpreting codes with unreasonable requirements or charging excessive fees.

Interconnection

The gradual rewrite of Rule 21 continued in 2019 with weekly working group meetings throughout most of the year. The CPUC approved the first round of changes, which allow applicants to avoid transmission studies and modify pending applications, among other things. Other changes under consideration include tighter timelines for studies and upgrades, improvements to application portals, and easier approval for non-export controls. In addition, CALSSA is fighting utility attempts to use smart inverter standards to

shut down the market.

Other Soft Cost Issues

We sponsored and passed AB 1208 (Ting), which extends an exemption of solar generation from local energy taxes. We also campaigned vigorously at the Contractor State Licensing Board to ease restrictions on solar contractors installing batteries and to oppose increased restrictions.

Net Metering

The official proceeding for NEM-3 will not open until mid-2020, but CALSSA has been working with the CPUC on methodology for calculating the value of solar that will provide the foundation for the upcoming battle. We fought a proposal at SMUD that would have gutted net metering and set a dangerous precedent.

Solar Water Heating Incentives

We have been busy teeing up the next phase of policy support after the CSI-Thermal program expires in 2020. Solar water heating will be eligible for incentives in a new program on building decarbonization. The eligibility details and program support are still under development.

Our fact sheets and webinars are available on our website at www.calssa.org/members-only. Be sure to use these resources to stay informed.

LEADERSHIP

Officers

President

Ed Murray, *Aztec Solar*

Vice President

Jeanine Cotter, *Luminalt*

Treasurer

Alexander McDonough, *Sunrun*

Secretary

Ben Airth, *Center for Sustainable Energy*

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Rachel Bird, *Borrego Solar*

Rich Borba, *JKB Energy*

Yann Brandt, *Quick Mount PV*

Gary Gerber, *Sun Light & Power*

Les Nelson, *IAPMO*

Keith Randhahn, *Baker Electric Home Energy*

Rick Reed, *SunEarth*

Jeff Spies, *Planet Plan Sets*

Catherine Von Burg, *SimpliPhi Power*

Howard Wenger, *Wenger Ventures*

Walker Wright, *ENGIE Storage Services*

COMMITTEES

CODES & STANDARDS

Chair: Jeff Spies, Planet Plan Sets

COMMUNITY CHOICE AGGREGATION

Chair: Scott Murtishaw, CALSSA

CONSUMER PROTECTION

Chair: Gary Gerber, Sun Light & Power

ETHICS

Chair: Ed Murray, Aztec Solar

HEALTH & SAFETY

Chair: Carlos Ramirez, Sunrun

INTERCONNECTION

Chair: Jeff Lounsberry, CalCom Energy

LEGISLATIVE & REGULATORY POLICY

Chair: Ben Airth, Center for Sustainable Energy

MUNICIPAL UTILITIES

Chair: Ben Davis, CALSSA

PERMITTING

Chair: Mark Rodriguez, Sunrun

SMART GRID

Chair: Tim McDuffie, Smarter Grid Solutions

STORAGE

Chair: Andy Schwartz, Tesla

THERMAL

Chair: Les Nelson, IAPMO

REGIONAL CHAPTERS

Chapters are where professionals from across the storage, PV, and thermal value chain get together, network, share best practices, and learn the latest industry developments. In 2019, our six chapters organized 16 events with nearly 600 attendees covering important topics such as energy storage, the latest on modules, solar financing, and consumer protection. Meetings are open to all employees at member companies so if you have not attended a meeting yet, make sure to join us in 2020! You can sign up for chapter updates on our website.



CALSSA members mingle before an LA chapter meeting begins at Edison Microgrids in Pasadena, CA.

Thank You To Our REGIONAL CHAPTER LEADERS



Bay Area

Mary Shaffer Gill, *AMS*
Charlie Seltzer, *CivicSolar*
Adrienne Underwood, *Sunrun*
Tor Valenza, *UnThink Solar*
Randy Zechman, *Clean Solar*

Central Valley

Tom Cotter, *Solar Gain*
Jack Ramsey, *Altsys Solar*
Joseph Smick, *Service Finance*

Los Angeles

Deep Patel, *GigaWatt*
Eric Presley, *Ironridge*

North Bay

Tyson Berg, *CED Greentech*
Keith Kruetzfeldt, *Suntegrity Solar*
Jeff Mathias, *Synergy Solar*

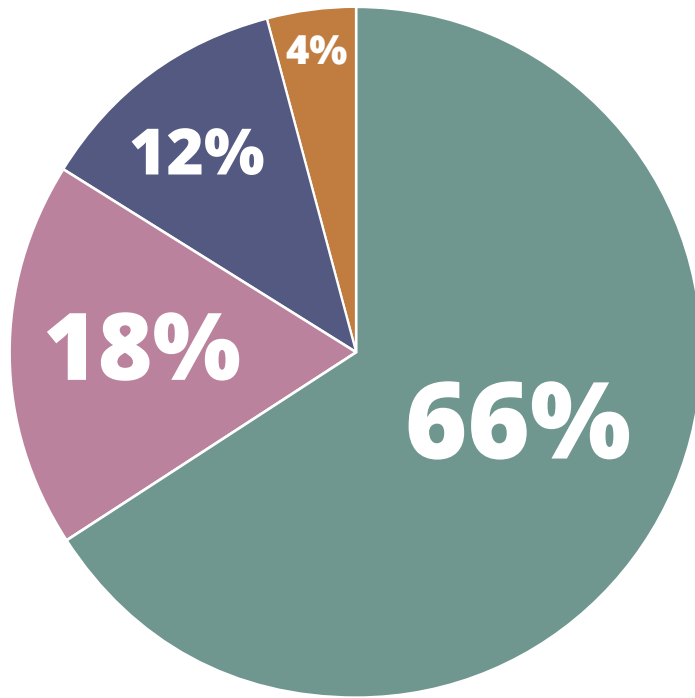
Sacramento

Ed Ayala, *Eco Foundations Systems*
Steve Geiger, *Grid Alternatives*

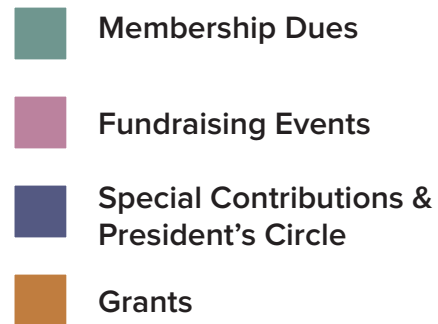
San Diego

Cecilia Aguillon, *Aguillon Enterprises*
Tara Kelly, *Sullivan Solar Power*
Martin Learn, *HES Solar*
Linda Turner, *Solaria*

RESOURCES & EVENTS

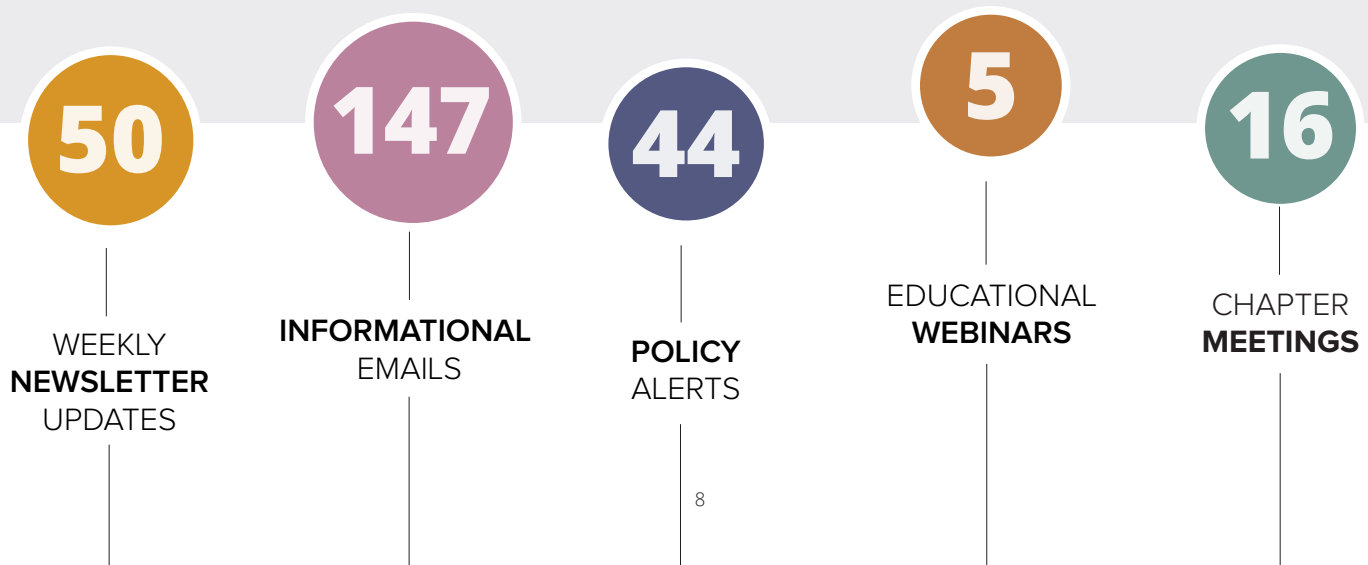


2019 REVENUE SOURCES



MEMBER EDUCATION

In 2019, CALSSA helped members understand, navigate, and succeed in an increasingly competitive marketplace. Each week we publish a high-level weekly update for members only, that provides timely information about changes and developments in the market. We also publish fact sheets, hold webinars and provide in-person trainings throughout the year to keep our members armed with the latest information to continue to run their business successfully.





2019 EVENTS

In 2019, we organized events throughout the state to support business-to-business networking, professional development, and policy advocacy, all while also providing CALSSA with much needed resources to keep the California market growing. From huge parties like Solar Battle of the Bands to our more intimate events like Contractor Day and our SoCal Golf Tournament, thousands of business professionals joined in the fun. We'd like to thank all of the companies that support our events through sponsorship and involvement. Without the industry's active participation in our events, our work would not be possible!



2019 Members (con't)

Discover Battery
Dividend Finance, LLC
Earth Electric Inc
Eco Foundation Systems Inc.
EcoFasten an Esdec Company
Ecolibrium Solar
EcoMotion
EDF Renewables
Electricus
ElectriQ Power
EMCOR Mesa Energy Systems
Empire LE
Empower Energies Clean Infrastructure
ENACT Systems Inc.
Energport, Inc
Energx Controls
Energy Risk Alliance
Energy Toolbase
EnergySage
ENGIE Storage Services
Enovative Construction
Enphase Energy Inc.
EnterSolar
Environmental Solar Design
EPC Power Corp.
EPX Group
EVA Green Power
Everest Solar Systems
Evergreen Solar
Everyday Energy
Extensible Energy
EZ Solar
F & L Contractors, Inc.
FAFCO
Feather River Solar Electric
FlowEnergyPartners
Folsom Labs
ForeFront Power
Fortress Power
Fortune Energy
FreeVolt USA Inc
Fronius USA
Fusion Power Design, LLC
GAF Energy
GameChange Solar
GE Solar
Geli
Generate Capital
GermanSolar
GetTheReferral.com
GigaWatt, Inc.
Gilmore Heat Air & Solar
Ginlong Solis USA
Gold Electric, Inc.
Gold Rush Energy Solutions
Golden Energy
Good Sun
Gr8 Energy
Graybar
Green Convergence
Green Solutions Inc
Green Wolf Energy
GRID Alternatives
Hanergy Thin Film Power America
Harrison Electric & Solar
Hawthorne Power Systems
Hecate Energy
Helios Services
HES Solar
Highlands Energy
HiQ Solar
Hooked On Solar
Horizon Solar Power
Hot Purple Energy
Hoymiles
Humless
Hyosung

Hyperlight Energy
IAPMO
IGS Solar
Indaspec, LLC
Infinity Energy
International Code Council (ICC)
IronRidge
Ivy Energy
James G. Parker Insurance & Associates
JinkoSolar (U.S.) Inc.
JKB Energy
JP Electric and Solar
JTG/Muir
Just Leaks
K2 Clean Energy Capital
Kahn Solar
Kenwood Energy
Keyes & Fox LLP
Kitu Systems, Inc.
Kurios Energy
Kuubix Energy
KW Hour
Layered Conceptz
Legacy Risk and Insurance Services
Lets Get Solar
LG Chem
LG Electronics U.S.A. Inc.
Lumeta Solar
Luminalt Energy Corporation
M Bar C Construction, Inc.
Magic Sun Solar Inc.
Maiden Solar
Martin Herzfeld
Matadors Community Credit Union
Mayfield Renewables
MAYO Designs
MBL Energy
McCalmont Engineering
Measure The Sun
Mendocino Solar Service
Meta Solar
Michael & Sun Solar, Inc.
Mid-State Solar
Mission Solar Electric
Mission Solar Energy
MMCSolar
MMPVdesign
Modular Lifestyles, Inc.
Mohr Power Solar
Mosaic
naak inc
NABCEP
NantEnergy
Natron Resources Inc.
Neat Energy
NEC Energy Solutions
NeoVolta
New Day Solar
NEXTracker, Inc.
NH Research
North Coast Solar (Energy Equity)
Northern Pacific Power Systems
Nova West Solar
Now Go Solar
Nuance Energy Group, Inc.
O&M Solar Services, LLC
Occidental Power Solar & Cogen
O'Connell Solar Consulting
OMG Roofing Products
Omnidian
Onswitch, Inc.
OpenEGrid
OpenSolar
Option One Corporation
OutBack Power
Owen Dunn Insurance Services
PACEFunding
Pacific Energy Company

Paladin Power Inc
Palmetto Clean Tech
Palomar Solar Ltd
Panasonic Corporation of North America
Pason Power
Pathion
Pathways Energy
PCL Construction
Pearl Certification
Pegasus Solar, Inc.
PermacitySkybridge
Peterson Power Systems, Inc.
Photon Brothers
Photon Stellar
Pick My Solar Corp.
Pika Energy
Planet Plan Sets
Platt Solar
POCO Solar Energy Inc.
Point Load Power
PowerGuard
Powers Engineering
Power-Structures LLC
PowerTree
Powur
Primus Power
Prof. Thomas Davies
Promise Energy, Inc.
ProSight Specialty Insurance
ProSolar (Professional Solar Products)
Pure Power Solutions
PV Designers
PYCEM Inc
Quality Home Services
Quattro Solar, Inc.
Quick Mount PV
R.T. Maher Construction
Radiant Solar Technology
RBI Solar, Inc.
REC Solar
Rector Law Office
Recycle PV Solar
ReGreen Inc.
Rehab Solar Construction
Reimagine Power
Rem Electric
Renew Financial
Renewable Energy Partners, Inc
Renewable Energy Test Center, RETC LLC
Renewable Solar, LLC
Renova Energy Corp.
Renvu Solar Equipment Distribution
RePurpose Energy
Revel Energy
Rexel Gexpro
Rod Bergen P.E.
Ron Dorris Electric & Solar
Roof Tech Inc.
Rosendin Electric
Run on Sun
S-5I
Sadler Solar
Sage Renewables
Salal Credit Union
San Diego County Solar
Sandbar Solar
Santa Cruz Solar
Sattler Solar Inc.
Sawmill Solar Electric
Schneider Electric
Scudder Solar Energy Systems
Seaward Group
SEG Sustainable Energy Group
Semper Solaris
SepiSolar, Inc.
Shorebreak Energy Developers
Siemens Corporation
Sierra Pacific Home & Comfort

Sighten
 Simmitri
 SimpliPhi Power
 Skelly Electric
 Sky Power Solar
 Skyven Technologies
 SMA America, LLC.
 Smarter Grid Solutions
 Sol Systems
 Solahart Industries Pty Ltd
 Solar Action Network
 Solar Carports Direct
 Solar Design Tool
 Solar Energy Network
 Solar FlexRack
 Solar Forward
 Solar Insure
 Solar One
 Solar Optimum
 Solar Pro Energy Systems
 Solar Richmond
 Solar Savings Direct
 Solar Symphony
 Solar Technologies
 Solar Unlimited Inc
 Solar Vast
 Solar Wholesale Group
 Solar Works
 SolarCraft
 Solare Energy, Inc.
 SolarEdge Technologies
 SolarGain West
 SolarGem Electrical
 SolarGnosis
 SolarHealer
 Solaria
 Solar-Klean, LLC
 Solar-Log
 SolarNexus
 SolarOPS - Radiacap Corp
 Solarplaza
 Solarponics
 SolarPowerRocks.com
 SolarReviews.com
 solarXperts
 SolFuture LLC
 Soligent
 SolPal
 Soltage, LLC.
 Soltection
 Sol-Tek Industries, Inc.
 Sonnen Inc.
 SoundView Risk Advisors
 Southwestern Solar Systems
 S-SPACE
 Span.IO
 Spano VPP Dev Co
 Spectrum Energy Development, Inc
 StableSolar, Inc.

Stada Energy
 Standard Solar
 StarSeed
 Stellar Solar
 Stem, Inc.
 Sullivan Solar Power
 Sun Light & Power
 Sun Pacific Solar Electric, Inc
 Sun Solar Electric
 Sunbank Solar, Inc.
 SunCo Solar Inc
 Sundam Energy
 Sundrum Solar
 SunEarth, Inc.
 Sungage Financial, Inc.
 Sungenia Solar Solutions
 Sunenix Energy Solutions
 SunGreen Systems Inc.
 Sunmizer Solar Roofing Systems
 SunModo Corporation
 Sunnova Energy Corporation
 Sunny Energy of California
 SunPower By Sun Solar
 Sunpower Corporation
 Sunriver Solar
 Sunrun
 SunSolar U.S. Inc.
 SunSpark Technology Inc
 SunSpec Alliance
 SunStreet Energy Group LLC
 Suntegrity Solar
 Sunterra Solar Inc
 Sunthurst Energy, LLC
 Suntrek Industries, Inc.
 Sunworks, Inc.
 Surrette Battery
 Sustainabilist
 Sustainable Technologies
 Sustineo
 Sutton Enterprises
 Swell Energy
 Symmetric Energy LLC
 Synergy Home Improvement
 Synergy Power
 Synergy Solar & Electrical Systems Inc.
 Tangerine+
 Tax & Financial Group
 TerraVerde Energy, LLC
 Tesla
 The Energy Loan Network, Inc.
 The Solar Energy Company
 ThinkWire Energy Services
 Tigo Energy, Inc.

Titanium Power
 Tony Haske Consulting
 Top Energy USA LLC
 Tosdal Law Firm
 TransUnion
 Treepublic
 Triple Line Solar
 Turtle Energy Storage Services
 UC Solar/UC Merced
 UL LLC
 UMA Solar Inc.
 Unique Solar
 UNIRAC, Inc.
 United Sun Energy
 Urban Ore
 US Solar Distributing Inc
 Utility Cost Management
 UtilityAPI
 Vasco Solar Energy
 Vector Green Power and Materials LLC
 Verdera Partners
 VGG Systems Corp.
 Villara Building Systems
 Vital Energy
 Vivint Solar, Inc.
 Voltaic Power
 Walter Mortensen Insurance/INSURICA
 We Recycle Solar
 Wendel, Rosen, Black & Dean LLP
 Wenger Ventures
 WESCO Distribution
 West Coast Sustainable
 West Hills Construction, Inc.
 Westcoast Solar Energy
 Westhaven Solar
 Wing Solar & Wood Energy, Inc.
 Wivity Inc.
 Xero Solar
 Yaskawa - Solectria Solar
 Ygrene Energy Fund
 Yotta Solar
 YourSolarPlans, Inc.
 YSG Solar
 Zilla Corporation
 ZSolar

515
MEMBERS

110
NEW
MEMBERS

75%
OF CA SOLAR
THERMAL PROJECTS
INSTALLED BY A
CALSSA MEMBER

75%
OF CA GRID-TIED
STORAGE PROJECTS
INSTALLED BY A
CALSSA MEMBER

87%
OF CA PV
PROJECTS
INSTALLED BY A
CALSSA MEMBER

**THANK YOU TO OUR
2019 PRESIDENT'S CIRCLE**

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CHICO ELECTRIC
SOLARCRAFT
 CLEAN ENERGY SOLUTIONS
MOSAIC
PYGEM
SUNEARTH INC.
Electricious
ENGIE
WENGER VENTURES
WENDEL ROSEN
 BLACK & DEAN LLP

California Solar & Storage Association

OUR TEAM

Bernadette Del Chiaro



Executive Director

Brad Heavner



Policy Director

Elise De Grande



Operations Director

Josh Buswell-Charkow



Deputy Director

Carter Lavin



Membership Director

Meghan Vincent-Jones



Marketing Director

Scott Murtishaw



**Senior Advisor,
Regulatory Affairs**

Ben Davis



Policy Associate

Donald Simon



Legal Counsel
Wendel, Rosen, Black & Dean LLP

Kim Stone



Lobbyist
Stone Advocacy

Tim Lindl



Regulatory Attorney
Keyes & Fox LLP

Leo Wallach



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