

SOUTH BAY CITIES
COUNCIL OF GOVERNMENTS



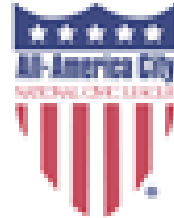
SOLAR WITH CONFIDENCE

Residential Solar in Carson

Solar for Single-family Homes

- **Solar Basics**
- **System Sizing & Siting**
- **Energy Storage & EV Integration**
- **Payment Options**
- **Find a Contractor**
- **City Web Resources**

Carson Designated SolSmart Gold!



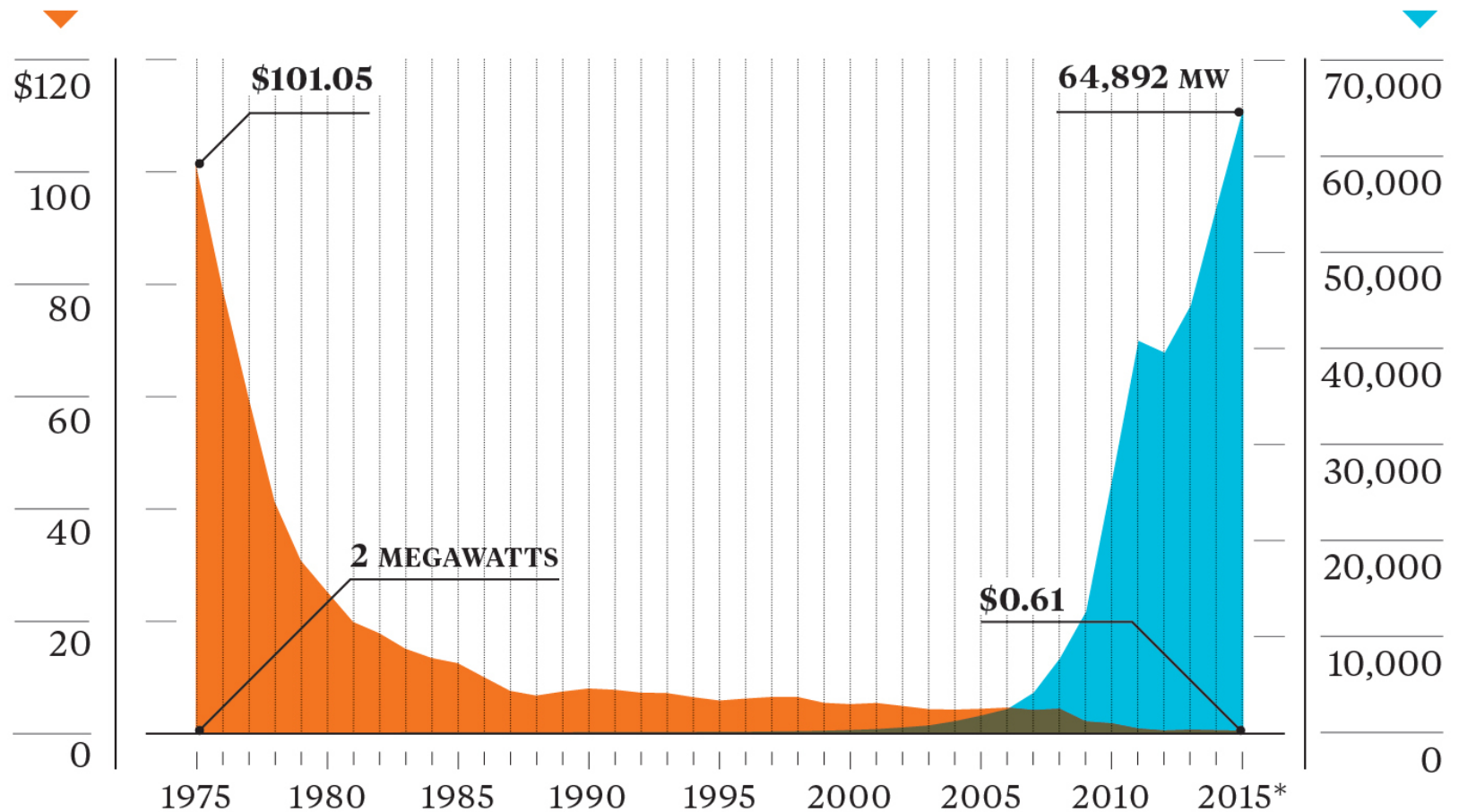
Designated in **Gold** March 2019



As Price Decreased, Installs Increased

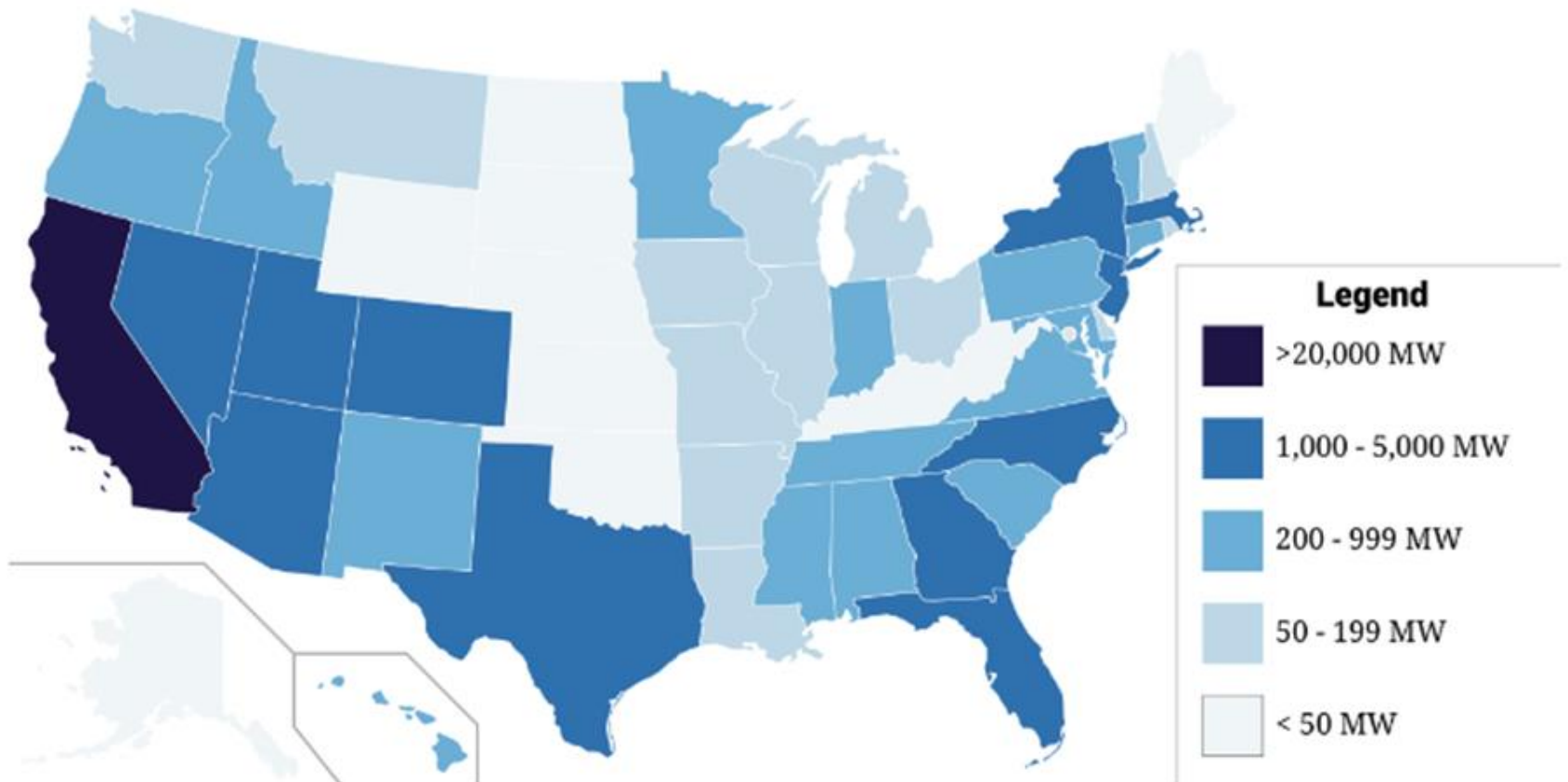
Price of a solar panel per watt

Global solar panel installations



*Estimate. Sources: Bloomberg, Earth Policy Institute, www.earth-policy.org

Cumulative Solar Capacity by State through Q2 2018



What does this mean for your bottom line? 6

- **Prices have decreased**
 - Total install cost \$3.00 to \$5.00 per Watt
- **Equipment efficiency**
 - More watts per panel
 - Fewer conversion losses (from DC to AC)
- **Tax credit**
 - Currently 30%
 - Will decrease to 26% in 2020





Module



Array



Inverter



Micro Inverter



Kilowatt Hour

A measure of electrical energy equivalent to a power consumption of 1,000 watts for 1 hour.

kWh = (kilowatt hour) Unit of energy

- You consume kWh
- PV system produces kWh

If you leave 10 100W lightbulbs burning for 1 hour...



Net Metering

A billing mechanism that allows you to receive credit when your solar production exceeds your electricity demand and thereby flows into the grid.

Time of Use*

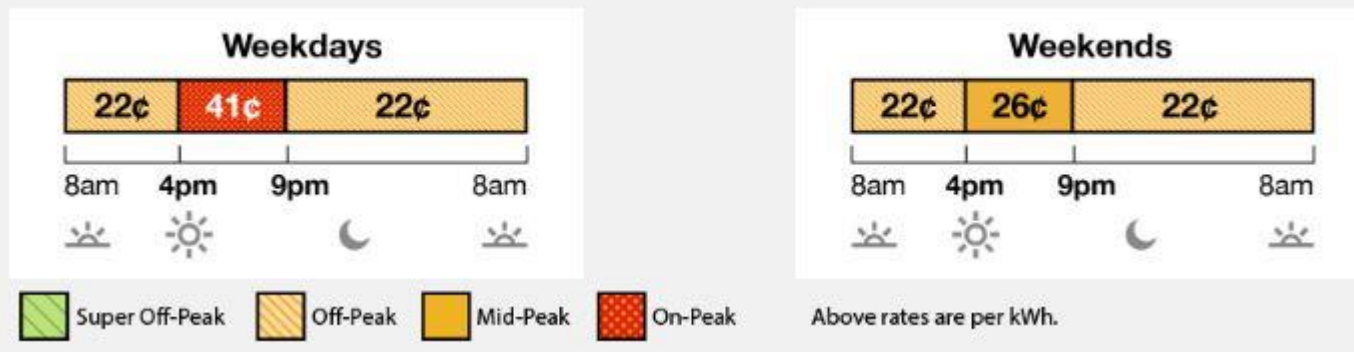
A rate plan in which rates vary according to the time of day, season, and day type (weekday or weekend/holiday). Higher rates are charged during peak demand hours** and lower rates during off-peak (low) demand hours.

*All solar systems must be on a Time of Use rate.

**Peak periods have shifted from 12:00 PM – 6:00 PM.

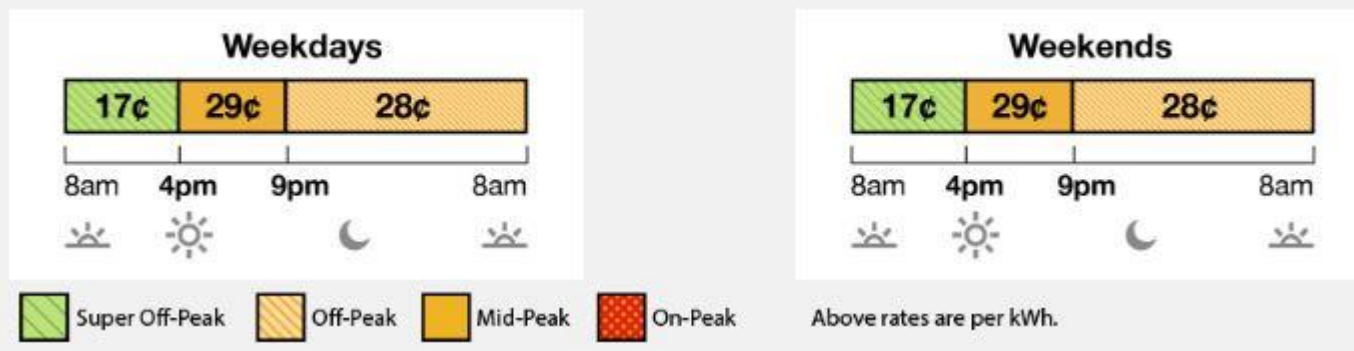
SCE Summer Rates*

June to September (4 months)



SCE Winter Rates*

October to May (8 months)



*Rates effective as of April 12, 2019 for TOU-D-4-9PM. Other residential rates will vary.

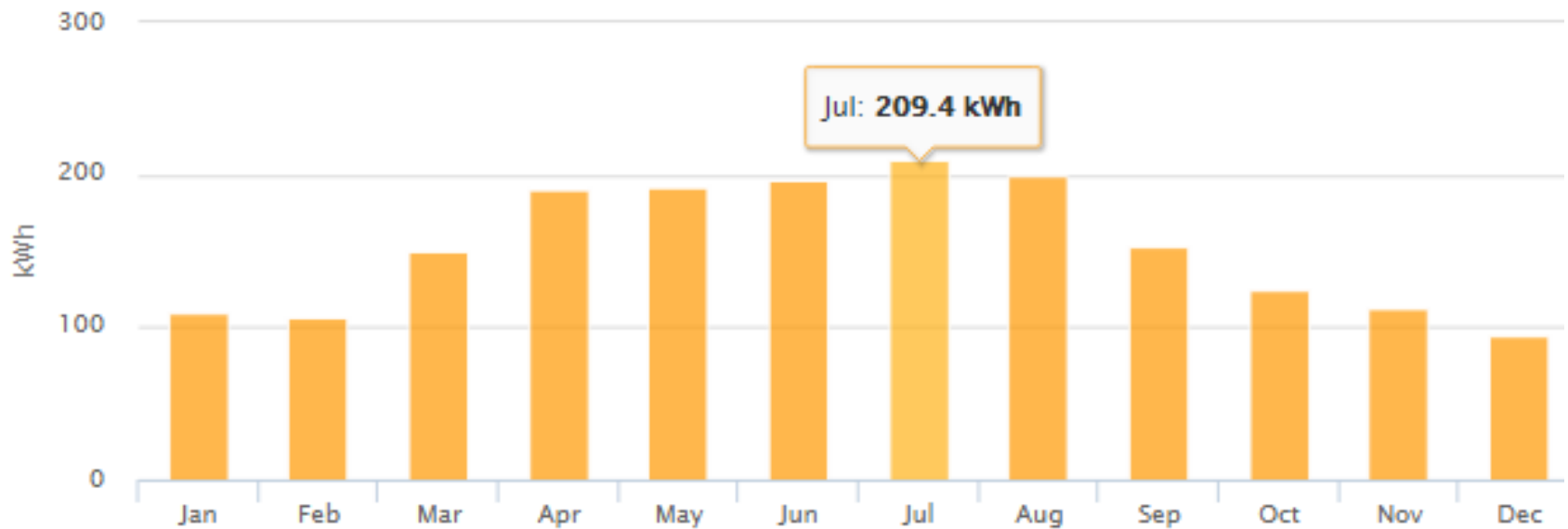
Payback
Financial return.

E.g. 3 kW system at \$4.00/W, 2% utility escalation rate, 9.5 year payback

Years	Project Costs	O&M/ Equipment Replacement	Electric Bill Savings	Change in Federal Tax Liability	Total Cash Flow	Cumulative Cash Flow
Upfront	(\$12,000)	-	-	-	(\$12,000)	(\$12,000)
1	-	-	\$791	\$3,600	\$4,391	(\$7,609)
2	-	-	\$803	-	\$803	(\$6,806)
3	-	-	\$815	-	\$815	(\$5,991)
9	-	-	\$890	-	\$890	(\$842)
10	-	(\$22)	\$904	-	\$882	\$40
23	-	(\$37)	\$1,095	-	\$1,058	\$11,651
24	-	(\$39)	\$1,112	-	\$1,073	\$12,724
25	-	(\$41)	\$1,128	-	\$1,087	\$13,811
Totals:	(\$12,000)	(\$1,541)	\$23,750	\$3,600	\$13,811	-

Solar Basics: Annual Production Curve

Monthly Production



Solar Basics: Daily Production Curve

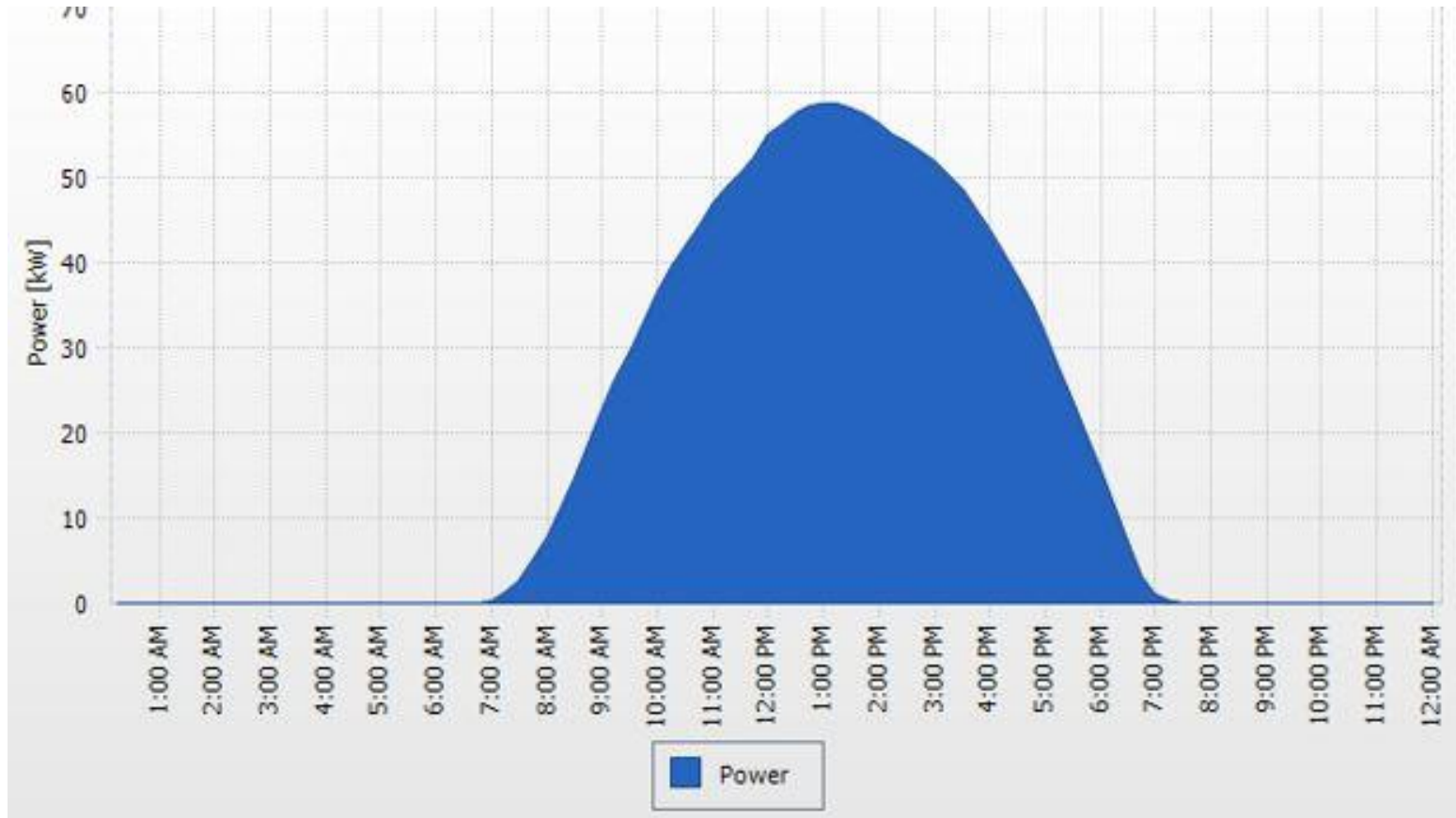


IMAGE COURTESY: SMA SUNNY PORTAL

Solar Basics: Not all days created equal

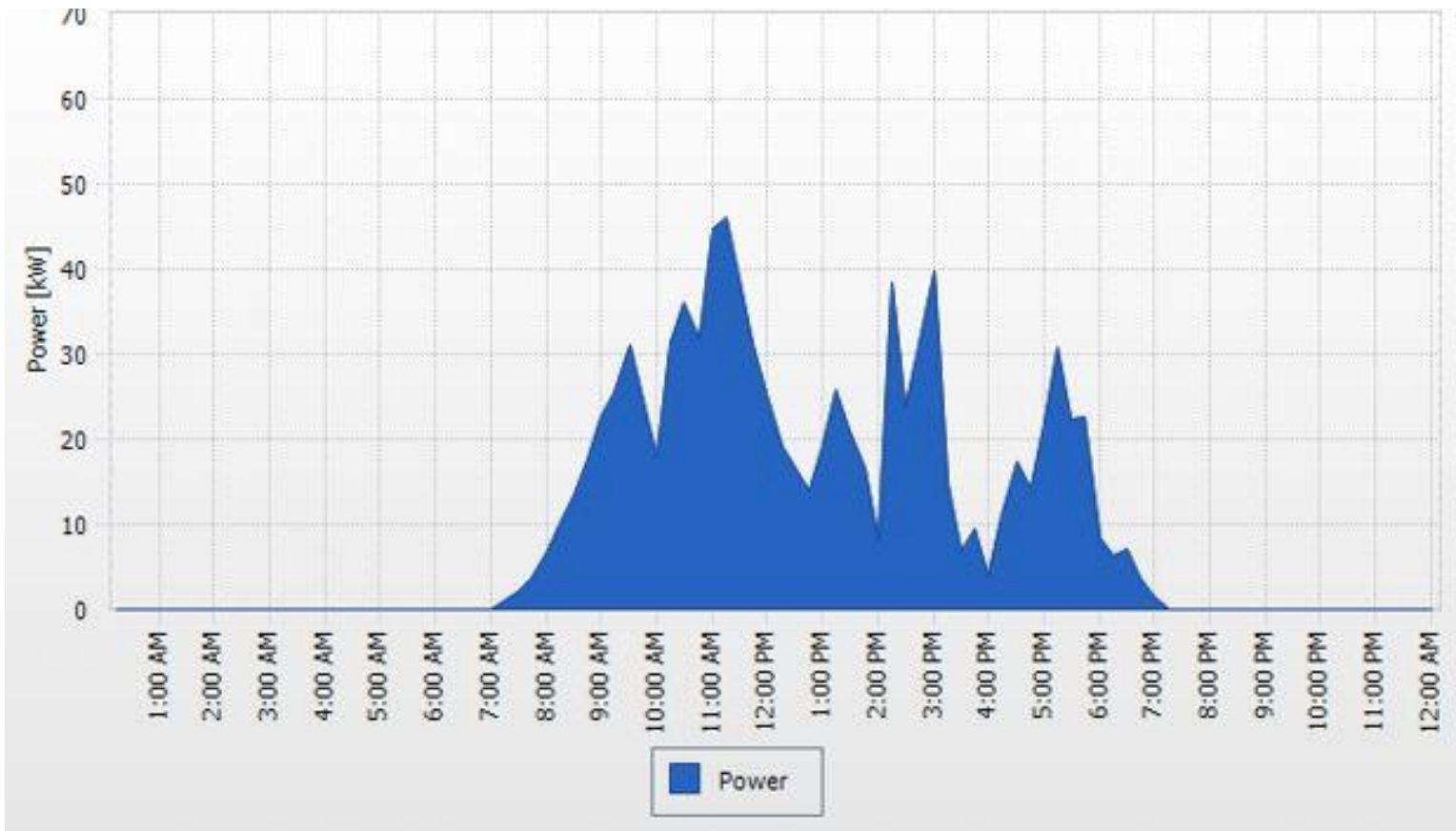


IMAGE COURTESY: SMA SUNNY PORTAL

Reduce your use before you produce!



1) Total kWh to offset*

2) Divide by 1,500 kWh

**E.g. 6,000 kWh / 1,500 kWh = 4
kW PV system**

*You cannot offset more than 100% of your use (based on last year before installing solar).

System Sizing & Siting: Roof Condition





- Orientation
- Shade
- Hips & valleys
- Age of roof



Cash: buy the system outright

Property-Assessed Clean Energy (PACE): financed through an assessment on your property tax bill

Lease: A third-party buys the system and charges a monthly lease payment

Other Financing: Home equity loan, PV lending programs

Seek multiple bids

- [SBCCOG Contractor List](#)

Online Platforms

- [EnergySage](#)
- [Pick My Solar](#)



Workmanship: 1 year

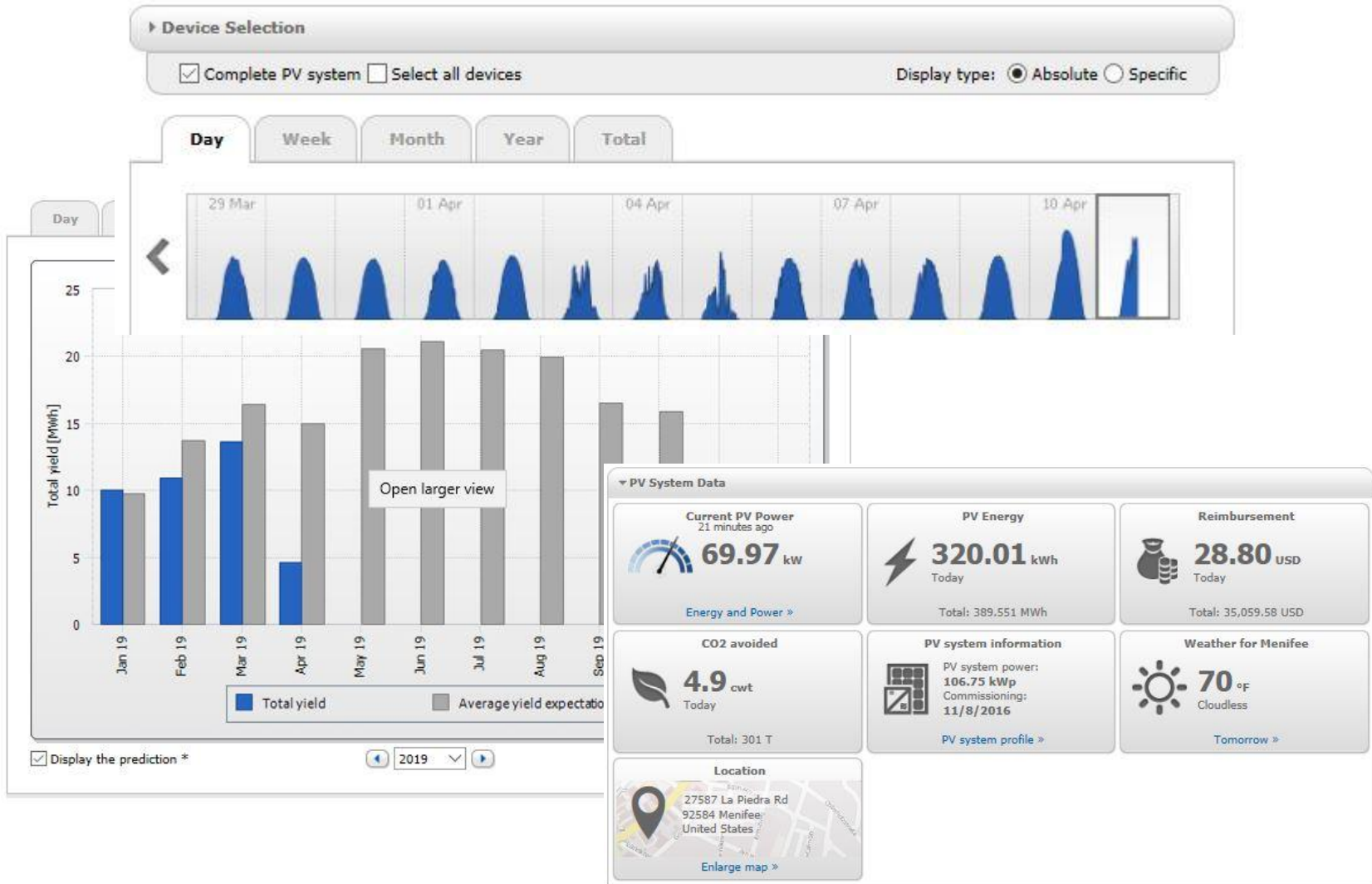
Modules: 25 years

Inverters: 10 years

Batteries: 10 years

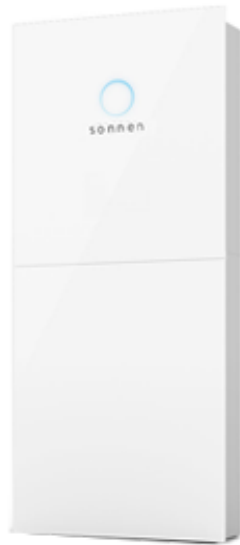
Maintenance: Typically not included!

Find a Contractor: Monitoring



Energy Storage EV Infrastructure

Sonnen Eco 10



Capacity – 10.0 kWh

Power – 7.0 kW

Tesla Powerwall



Capacity – 13.5 kWh

Power – 5.0 kW

LG RESU 10

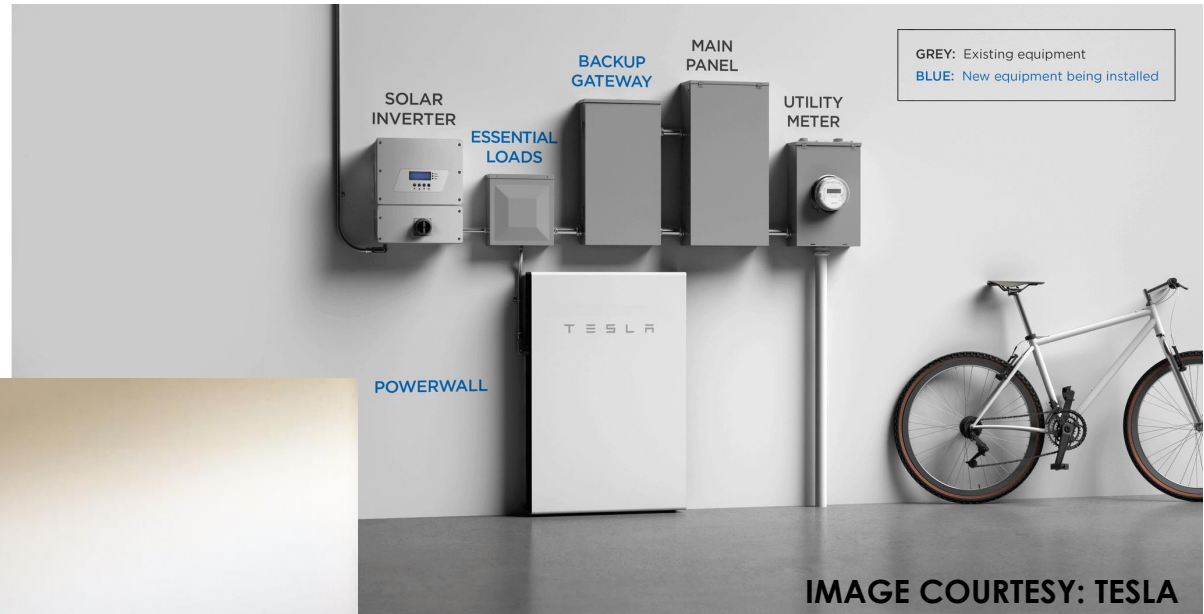


Capacity – 9.8 kWh

Power – 5.0 kW

\$5,000 - \$7,000+ per battery plus \$1,000 - \$3,000 for installation + tax/fees

Tesla Powerwall



Sonnen Eco 10 + EV Charger

CEC Self Generation Incentive Program

Currently \$0.35/Wh of installed battery capacity

E.g. 10,000 Wh (10 kWh) X \$0.35 = \$3,500 rebate

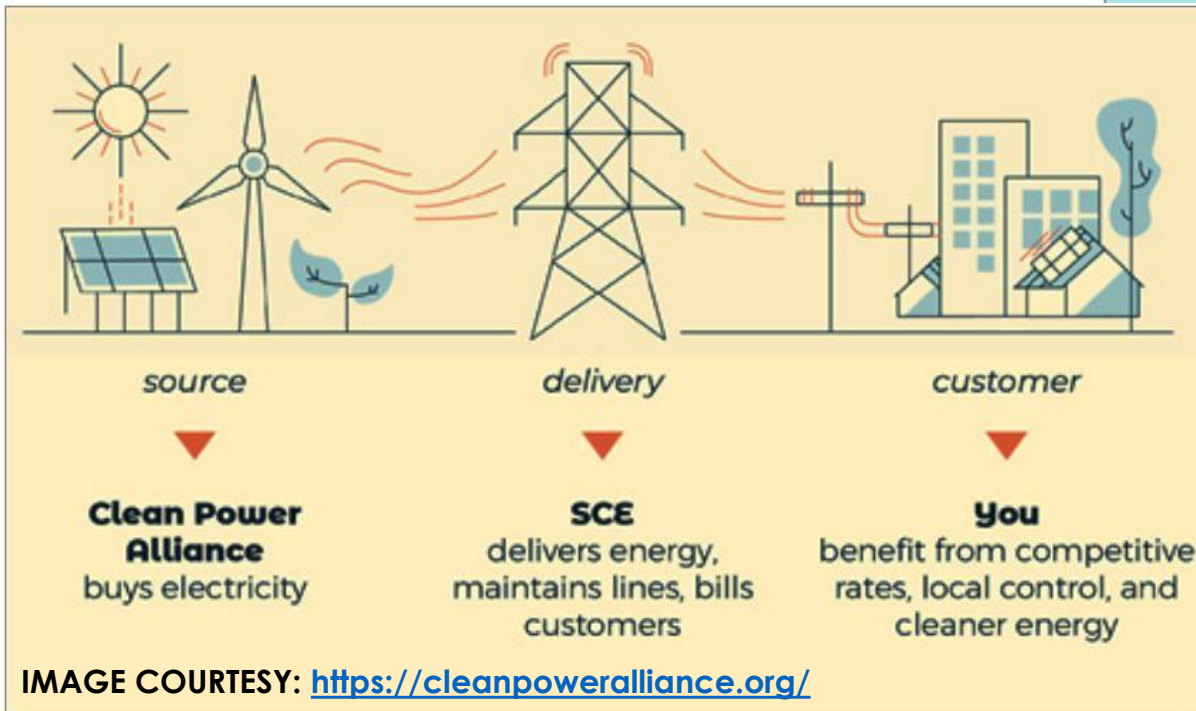
SCE Clean Fuel Reward Program

\$1,000 per vehicle bought or leased after January 1, 2019. \$450 per vehicle bought or leased before 2019.

CPA Customers Remain Eligible for SCE Rebates!



Clean Power
Provides 50% renewable content and the opportunity to support building a cleaner future, all at cost competitive rates.



City-Wide Updates

- What's Happening in Planning Development

The City is no longer accepting applications for Cannabis.

- City Sponsored Excursions
- Residential Property Report
- Bidding Opportunities
- City Employment Opportunities
- Property Information System

Senate Bill 1 (SB 1) Projects



- City of Carson Commences Search for next City Manager



Citizen Engagement

Citizens are able to submit a request for an issue such as potholes, signs, or overgrown vegetation, etc.

Agency Code: "Car01". [click here](#) for detailed instructions.

Community & Publications

- Parks and Recreation
- Senior Recreation
- Transportation
- Public Safety

- Carson Recreation



- Carson Library Events and Programs
- Martin Luther King Library Events and Programs

Carson, Best City to Do Business

Video courtesy of Watson Land



Solar/Photovoltaic Information

- Carson SolSmart Support Statement
- LA County Solar Map

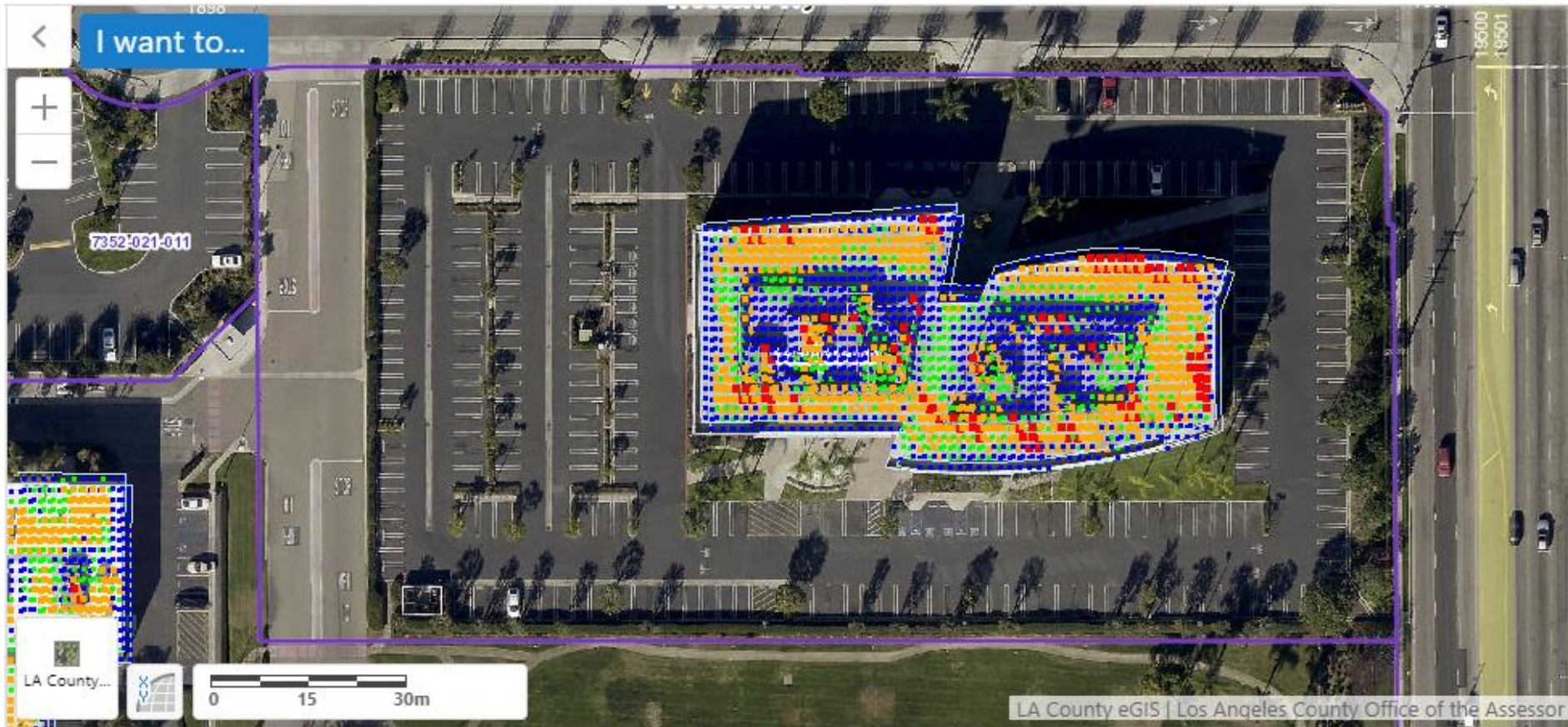
[Click for more details.](#)



General Plan Update
We Need Your Input!

Available Resources

- **LA County Solar Map**
- Permit Submittal Requirements for One- and Two-family Homes Handout
- Financing & Consumer Resources
- California Energy Policy Summaries



Available Resources

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Submittal Requirements for PV Systems for One- and Two- Family Dwellings

ATTACHMENT A
BCM 6807
Article 1
04-04-16
Page 1 of 3

This information bulletin is published to guide applicants through a streamlined permitting process for small residential rooftop solar photovoltaic (PV) projects 10 kW in size or smaller. This bulletin provides information about submittal requirements for plan review, required fees, and inspections.

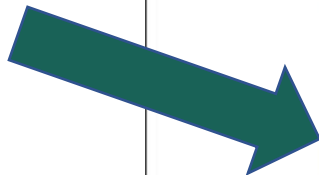
1. Approval Requirements

A combined solar energy permit, which includes building and electrical work, is required to install a solar PV system with a maximum power output of 10 kW.

2. Submittal Requirements

- a) Completed permit application form. This permit application form can be downloaded at <http://dpw.lacounty.gov/bsd/content>.
- b) Demonstrate compliance with the eligibility checklist for expedited permitting. See Attachment B – Eligibility Checklist for Expedited Solar Photovoltaic Permitting.
- c) A completed Standard Electrical Plan. The standard plan may be used for proposed solar installations 10 kW in size or smaller and can be downloaded at <http://dpw.lacounty.gov/bsd/content>.
- d) A roof plan showing roof layout, PV panels and the following fire safety items: approximate location of roof access point, location of code-compliant

Permit submittal
requirements



Available Resources

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- **Financing & Consumer Resources**
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Los Angeles County PACE

Contact Us

Home

Map

PSA Videos

Reports



The Los Angeles County Residential Property Assessed Clean Energy (PACE) Program enables homeowners to install energy efficiency, renewable energy and water-saving improvements to their properties without putting any money down! Under PACE, homeowners may work with one of two County-approved program administrators, PACEFUNDING and HERO, to finance these home improvements.

A unique financing
installation of energy
Homeowners then r
PACE financing enl
creates green jobs.



hero[®]
financing



Carson Building & Safety Department

(310) 952-1766

Carson Engineering / Public Works, Reata Kulcsar

(310) 952-1700 ext. 1312, rkulcsar@carson.ca.us

South Bay Cities COG, Aaron Baum

(310) 371-7222, aaron@southbaycities.org

**Who's ready to go
solar?**



SOLAR WITH CONFIDENCE

EcoMotion, Inc.
619 S. Olive St., Suite 200
Los Angeles, CA 90014
949-292-7314

Thank you