



Center for
Sustainable Energy[®]
CALIFORNIA



for Homeowners 2:

Be a Smart Solar Customer

September 12, 2013

California Center for Sustainable Energy

Mission:

Accelerating the transition to a
sustainable world powered by clean energy

CCSE Programs

CCSE operates in three focus areas: energy efficiency, transportation, and renewable energy



- Energy Upgrade California
- California Solar Initiative
- Solar Water Heating Program
- Self-Generation Incentive Program (Wind, Fuel Cells, Energy Storage)
- Clean Vehicle Rebate Project

CCSE Services

- Workshops and Events
- Tool Lending
- Technical Assistance



Upcoming Events

- September 18 – Application Process Made Easy
- September 20 – San Diego Sustainability Tour
- September 21 – Oceanside – Energy Efficient Home Tour
- September 28 – La Mesa – Energy Efficient Home Tour
- September 28 – Electric Vehicle Day



CCSE Housekeeping

- Please sign in
- Turn off your cell phones
- Refreshments
- Recycle
- Restrooms down the hall
- Fill out your Evaluation Forms
- Tell people about CCSE!
- Presentation is available online at



<http://energycenter.org/california-solar-initiative/homeowners/events>

CCSE Disclaimer

Workshops are provided as a public service with the understanding that the California Center for Sustainable Energy makes no warranties, either expressed or implied, concerning the accuracy, completeness, reliability, or suitability of the information.

The California Center for Sustainable Energy does not endorse any particular product, manufacturer or service mentioned and does not represent that any goods or services are fit for any purpose or use.

Along the same lines, this is an informational workshop designed for homeowners. If you are in the energy efficiency or solar market, please refrain from pitching your products or services in this workshop.

Agenda

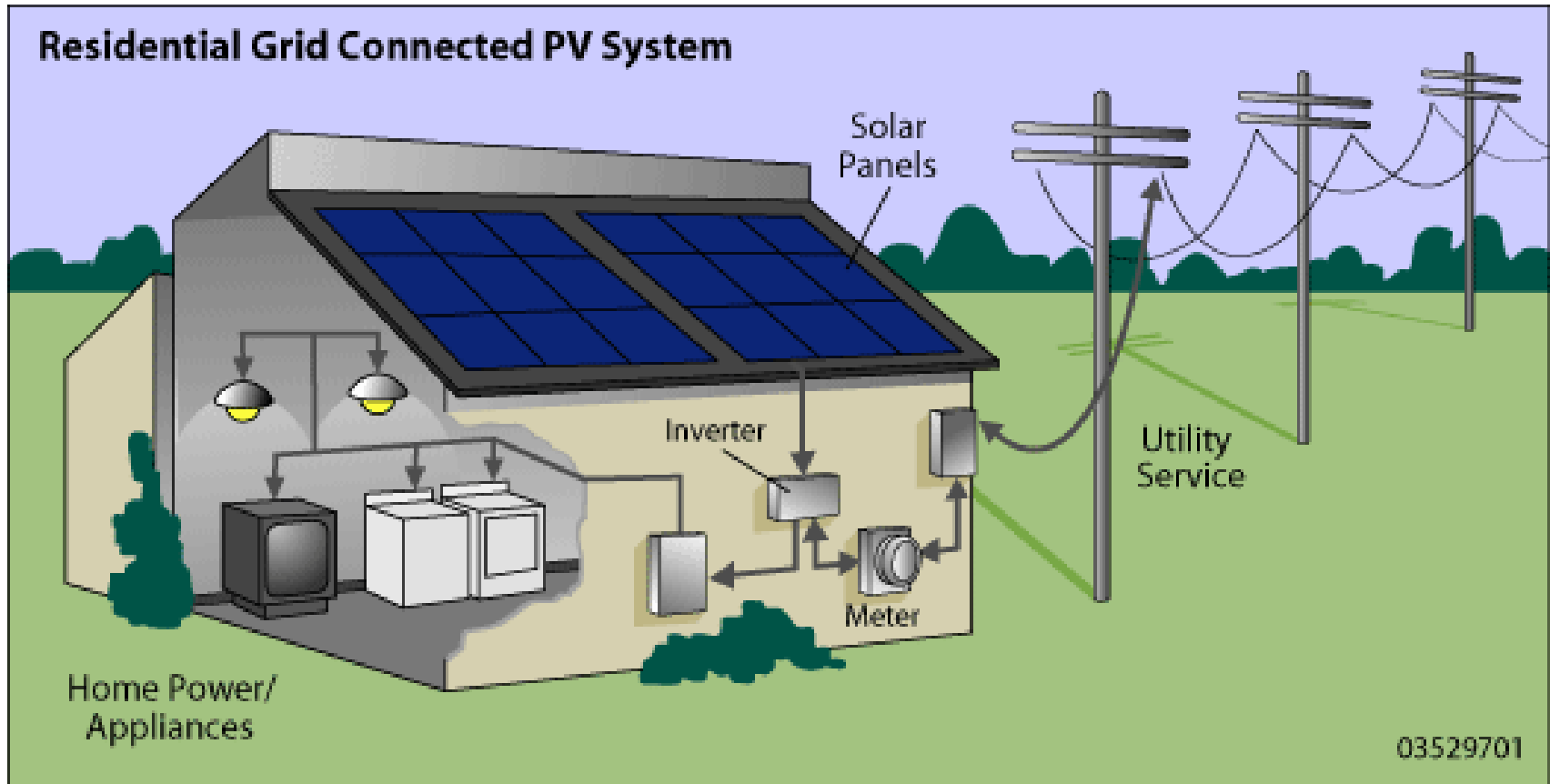
1. Solar for Homeowners 1 Review
2. Consumer Awareness
3. Financing Options
4. Bid Comparison
5. Contract Information
6. Solar Installation Process
7. Online Resources



Terminology

- **DC:** Direct Current (produced by solar panels)
- **AC:** Alternating Current (used in the home)
- **Efficiency:** Measure of how much of the sunlight is converted to electricity (%)
- **Capacity:** Total amount of power that a system produces
- **Watt:** Basic unit of power
- **Kilowatt:** A unit of electrical power equal to 1,000 watts (most common measurement)
- **Kilowatt-Hour:** The use of 1,000 watts of electricity for one full hour (basic unit of electrical usage billing)

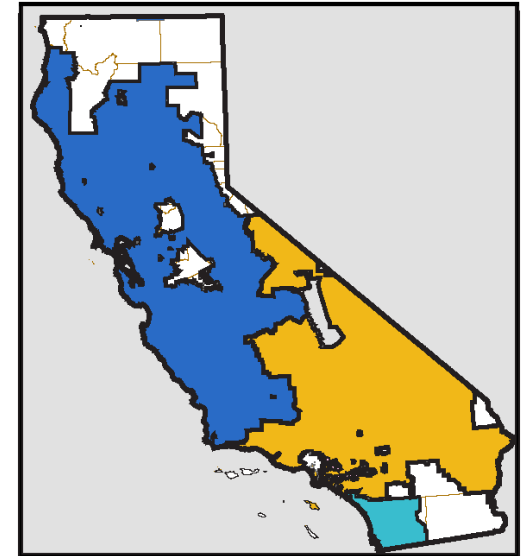
How does Solar PV work?



What is the California Solar Initiative?

The California Solar Initiative (CSI) is the solar rebate program in California for customers of the investor-owned utilities - **Pacific Gas and Electric**, **Southern California Edison**, and **San Diego Gas & Electric** (administered by CCSE).

- \$2.1 billion program for 10 years (2007-2016)
- Financed through utility rate-payers
- Designed for residential (retrofits only), commercial, government and non-profit sectors
- Program set in place by Senate Bill 1 (2006)
- Overseen by the California Public Utilities Commission



CSI Goals for the San Diego Region

(Residential General Market)

- Install 59.5 MW of solar photovoltaics on single-family homes from 2007-2016
- Total of 15,000 x 4kW (average size) systems
- **67.9 MW and 13,766 residential solar systems currently installed**
- **4.7 MW and 850+ residential solar projects on the Wait List**



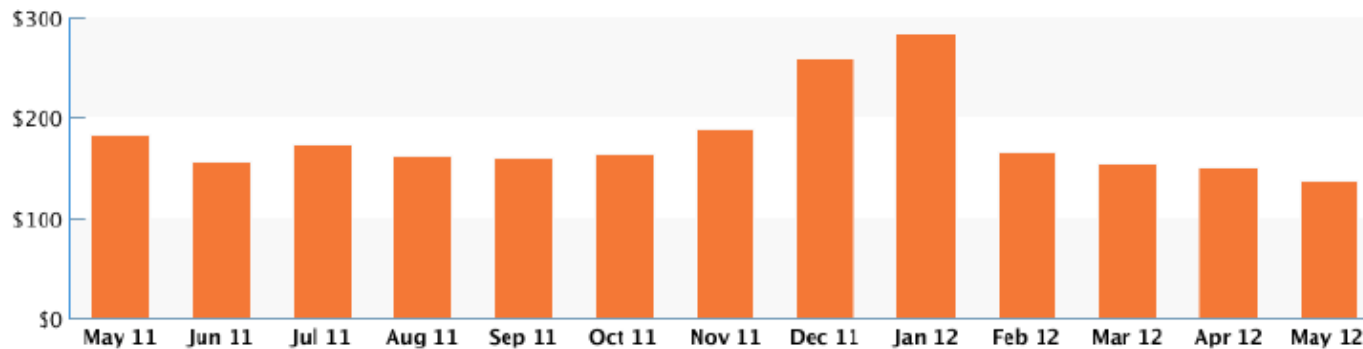
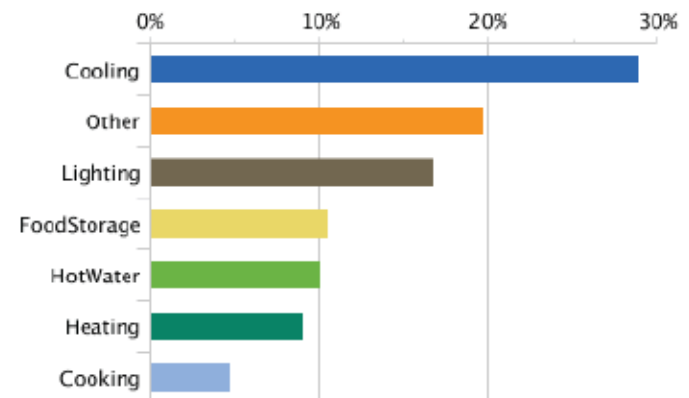
Have you done your homework?

- Complete Online Energy Audit
- Review past usage data using SDG&E's Energy Waves
- Electric Rate Analyzer Tool
- Find Contractors
- Research Contractors
- Receive Bids



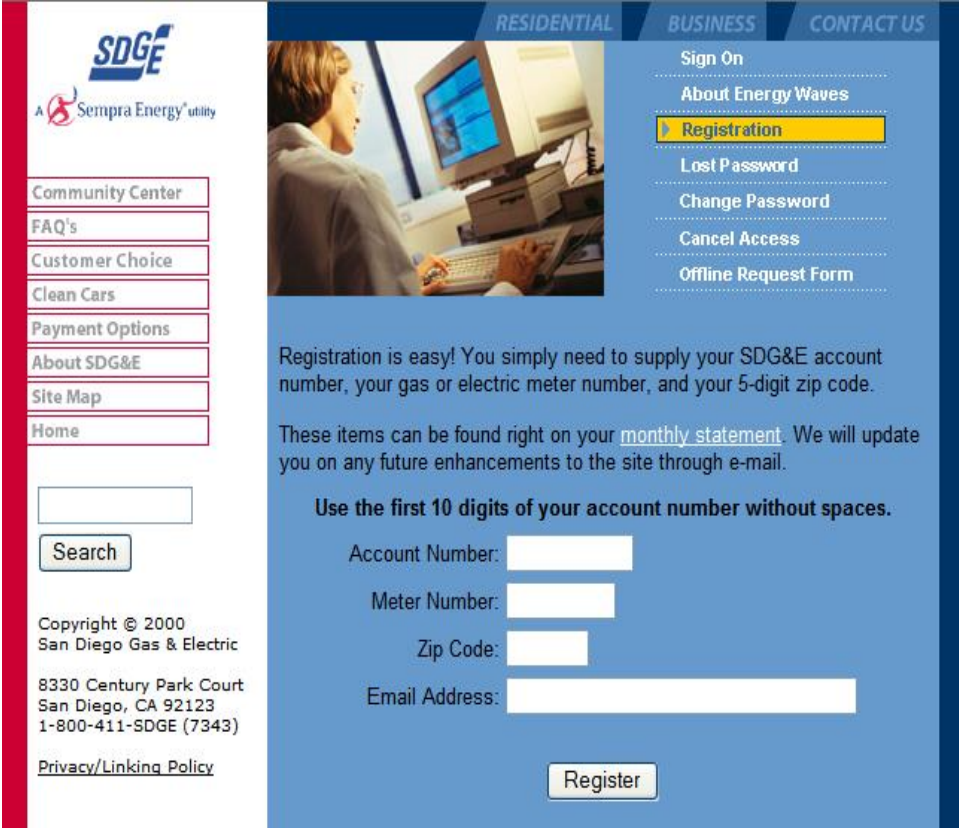
SDG&E Online Energy Audit

- Accessed through your account on the SDG&E website
- Pulls data directly from your account
- Analyzes the energy use at the home and makes recommendations to save energy
- <http://sdge.com/save-money/solutions-your-home/your-home-can-save-you-money>



Energy Waves

<http://energywave.sdge.com>



The screenshot shows the SDGE Energy Waves website. The top navigation bar includes 'RESIDENTIAL', 'BUSINESS', and 'CONTACT US'. The left sidebar contains a search bar and a list of links: Community Center, FAQ's, Customer Choice, Clean Cars, Payment Options, About SDG&E, Site Map, and Home. The main content area features a navigation menu with 'Registration' highlighted in yellow. Below the menu is a registration form with fields for Account Number, Meter Number, Zip Code, and Email Address, and a 'Register' button. A 'Sign On' button is also visible.

SDGE
A Sempra Energy utility

Community Center
FAQ's
Customer Choice
Clean Cars
Payment Options
About SDG&E
Site Map
Home

Search

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San Diego Gas & Electric
8330 Century Park Court
San Diego, CA 92123
1-800-411-SDGE (7343)
[Privacy/Linking Policy](#)

RESIDENTIAL BUSINESS CONTACT US

Sign On
About Energy Waves
Registration
Lost Password
Change Password
Cancel Access
Offline Request Form

Registration is easy! You simply need to supply your SDG&E account number, your gas or electric meter number, and your 5-digit zip code.

These items can be found right on your [monthly statement](#). We will update you on any future enhancements to the site through e-mail.

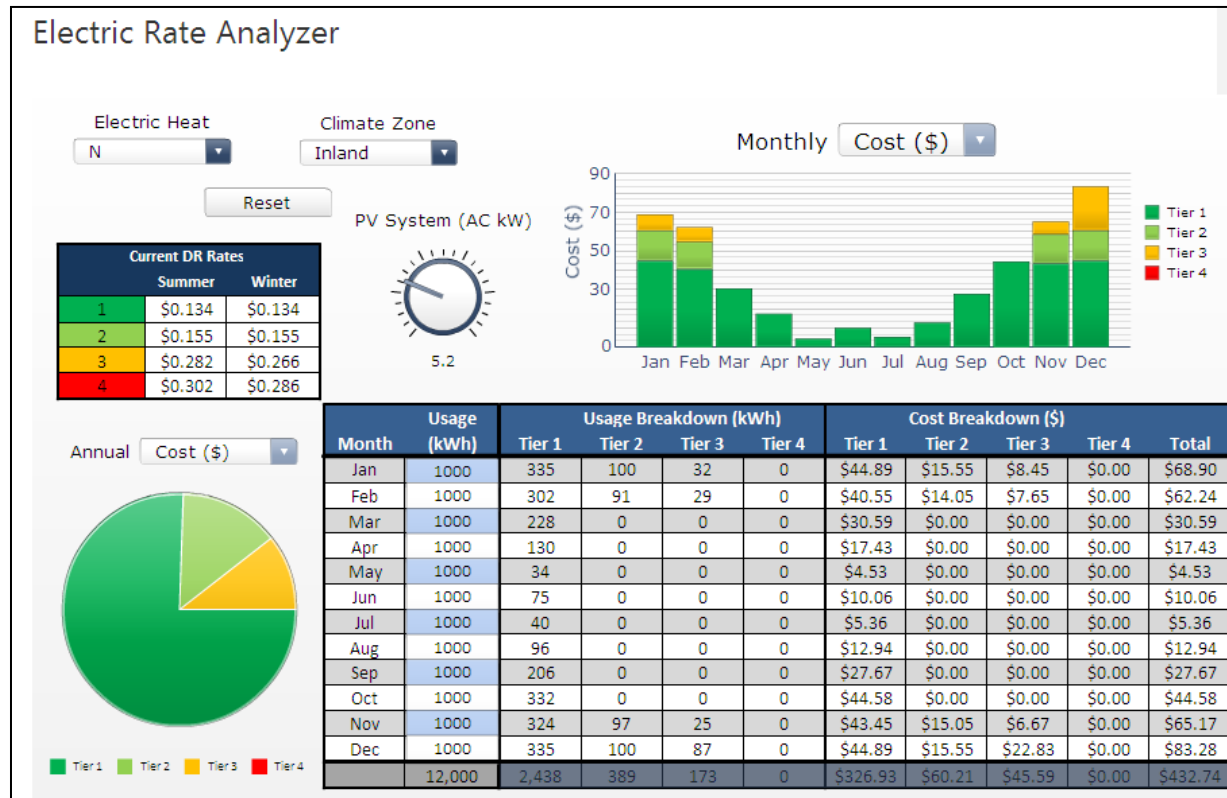
Use the first 10 digits of your account number without spaces.

Account Number:
Meter Number:
Zip Code:
Email Address:

Register

CCSE's Electric Rate Analyzer

www.energycenter.org/analyzer



Finding and Researching Contractors

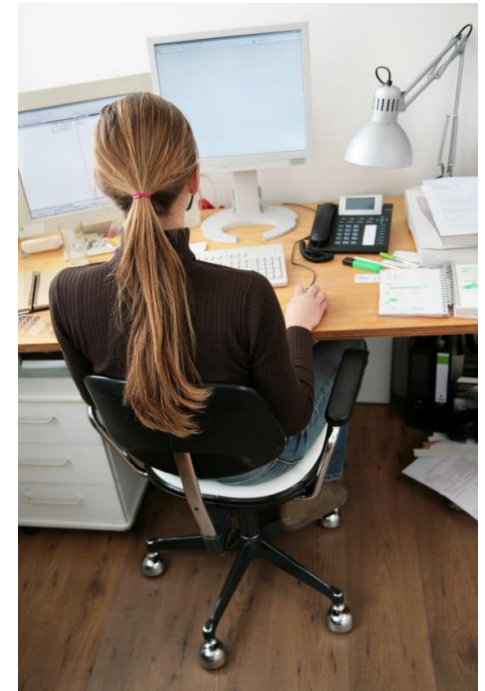
1. Finding solar contractors

- <http://californiasolarstatistics.com>
- www.gosolarcalifornia.ca.gov

2. Researching solar contractors

- www.cslb.ca.gov
- www.bbb.com
- www.google.com

3. Ask for References!!



Consumer Awareness



Avoid High Pressure Signing Tactics

- “Don’t be pressured into signing a contract by intimidation tactics, such as losing out on government incentives for not acting quickly. This might be a hint that the contractor does not have your best interests in mind.” –CSLB Website
- While it is true that CSI is on a declining scale of incentives, there are still funds available at this time and whimsically signing a contract for a large investment in order to receive a \$.20/w incentive may be a risky decision.
- Refer to <http://csi-trigger.com> to get up to date information about the program’s current incentive level.

Don't Sign Anything You Do Not Understand

"The large print giveth and the small print taketh away"

(i) You grant to _____ and its agents, employees and contractors the right to reasonably access all of the Property for the purposes of (a) installing, constructing, operating, owning, repairing, removing and replacing the System or making any additions to the System or installing complementary technologies on or about the location of the System; (b) enforcing rights as to this Lease and the System; (c) installing, using and maintaining electric lines and inverters and meters, necessary to interconnect the System to your electric system at the Property and/or to the utility's electric distribution system; or (d) taking any other action reasonably necessary in connection with the construction, installation, operation, maintenance, removal or repair of the System. This access right shall continue for up to ninety (90) days after this Lease expires to provide _____ with time to remove the System at the end of the Lease. _____ shall provide you with reasonable notice of its need to access the Property whenever commercially reasonable.

(ii) During the time that _____ has access rights you shall ensure that its access rights are preserved and shall not interfere with or permit any third party to interfere with such rights or access. You agree that the System is not a fixture, but _____ has the right to file any UCC-1 financing statement or fixture filing that confirms its interest in the System.

(i) Indemnity

To the fullest extent permitted by law, you shall indemnify, defend, protect, save and hold harmless _____, its employees, officers, directors, agents, successors and assigns from any and all third party claims, actions, costs, expenses (including reasonable attorneys' fees and expenses), damages, liabilities, penalties, losses, obligations, injuries, demands and liens of any kind or nature arising out of, connected with, relating to or resulting from your negligence or willful misconduct, provided, that nothing herein shall require you to indemnify _____ or its own negligence or willful misconduct. The provisions of this

paragraph shall survive termination or expiration Lease.

(j) Monthly Payments

The Monthly Payments section (Section 4(B)) describes your monthly payment obligations under Lease. YOU AGREE THAT THIS IS A NET LEASE THE OBLIGATION TO PAY ALL MONTHLY PAY AND ALL OTHER AMOUNTS DUE UNDER THIS LEASE SHALL BE ABSOLUTE AND UNCONDITIONAL UNDER ALL CIRCUMSTANCES AND SHALL NOT BE SUBJECT TO ANY ABATEMENT, DEFENSE, COUNTERCLAIM, SETOFF, RECOURSE OR REDUCTION FOR ANY REASON WHATSOEVER, BEING THE EXPRESS INTENT OF THE PARTIES THAT ALL AMOUNTS PAYABLE BY YOU HEREUNDER SHALL BE AND CONTINUE TO BE PAYABLE IN EVENTS INCLUDING BY YOUR HEIRS AND ES AND, EXCEPT AS SET FORTH BELOW, YOU HEREBY WAIVE ALL RIGHTS YOU MAY HAVE TO REJECT OR CANCEL THIS LEASE, TO REVOKE ACCEPTANCE OF THE SYSTEM, OR TO GRANT A SECURITY INTEREST IN THE SYSTEM.

6. CONDITIONS PRIOR TO INSTALLATION OF THE SYSTEM

_____s obligation to install and lease the System is conditioned on the following items having been completed to its reasonable satisfaction:

- completion of the engineering site audit (a thorough physical inspection of the Property including, if applicable, geotechnical work), real estate due diligence to confirm the suitability of the Property for the construction, installation and operation of the System;
- approval of this Lease by _____ financial partners;
- confirmation of rebate, tax credit and renewable energy credit payment availability in the amount used to calculate the Monthly Payment amount set forth in this Lease;
- confirmation that _____ will obtain all applicable benefits referred to in Section 9;
- receipt of all necessary zoning, land use and building permits.

_____ may terminate this Lease without liability if, in its reasonable judgment, any of the above listed conditions (a) through (e) will not be satisfied for reasons beyond its reasonable control. Once starts installation, however, it may not terminate this Lease for your failure to satisfy conditions (a) through (e) above.

Both parties will also have the right to terminate this Lease, without penalty or fee, if _____ determines after the engineering site audit of your Home that it has misestimated by more than ten percent (10%) any of (i) the System size, (ii) the System's total cost or (iii) the System's annual production. Such termination right will expire at the earlier of (i) one (1) week prior to your scheduled System installation date and (ii) one (1) month after we inform you in writing of the revised size, cost or production estimate. Any changes to the System will be documented in an amendment to this Lease. You authorize _____ to make corrections to the rebate paperwork to conform to this Lease or any amendments to this Lease we both sign.

7. WARRANTY

YOU UNDERSTAND THAT THE SYSTEM IS WARRANTED SOLELY UNDER THE LIMITED WARRANTY, AND THAT THERE ARE NO OTHER REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, AS TO THE MERCHANTABILITY, FITNESS FOR ANY PURPOSE, CONDITION, DESIGN, CAPACITY, SUITABILITY OR PERFORMANCE OF THE SYSTEM OR ITS INSTALLATION.

8. TRANSFER

_____ may assign, sell or transfer the System and this Lease, or any part of this Lease or the exhibits, without your consent. Assignment, sale or transfer generally means that _____ would transfer certain of its rights and certain of its obligations under this Lease to another party.

9. OWNERSHIP OF THE SYSTEM; TAX CREDITS AND REBATES

You understand and agree that this is a lease and not a sale agreement. _____ owns the System for all purposes, including any data generated from the System. You agree that the System is

personal property under the Uniform Commercial Code. You shall at all times keep the System free and clear of all liens, claims, levies and legal processes not created by SolarCity, and shall at your expense protect and defend SolarCity against the same.

YOU UNDERSTAND AND AGREE THAT ANY AND ALL TAX CREDITS, INCENTIVES, RENEWABLE ENERGY CREDITS, GREEN TAGS, CARBON OFFSET CREDITS, UTILITY REBATES OR ANY OTHER NON-POWER ATTRIBUTES OF THE SYSTEM ARE THE PROPERTY OF AND FOR THE BENEFIT OF _____, USABLE AT ITS SOLE DISCRETION. _____ SHALL HAVE THE EXCLUSIVE RIGHT TO ENJOY AND USE ALL SUCH BENEFITS, WHETHER SUCH BENEFITS EXIST NOW OR IN THE FUTURE. YOU AGREE TO REASONABLY COOPERATE WITH _____ SO THAT IT MAY CLAIM ANY TAX CREDITS, REBATES OR BENEFITS FROM THE SYSTEM. THIS MAY INCLUDE TO THE EXTENT ALLOWABLE BY LAW FILING APPLICATIONS FOR REBATES FROM THE FEDERAL, STATE OR LOCAL, GOVERNMENT OR A LOCAL UTILITY AND GIVING THESE TAX CREDITS, REBATES OR BENEFITS TO SOLARCITY.

10. OPTION TO PURCHASE THE SYSTEM PRIOR TO THE END OF THE LEASE TERM

You may not purchase the System prior to the end of the Lease Term.

11. OPTION TO RENEW YOUR LEASE

You have the option to renew your Lease Term for up to ten (10) years in two (2) five (5) year renewal periods. We will send you renewal forms three (3) months prior to the expiration of the Lease Term, which forms shall set forth the new Monthly Payments due under the renewal Lease, based on our assessment of the then current fair market value of the System. If you want to renew and you are in compliance with this Lease, complete the renewal forms and return them to us at least one (1) month prior to the end of the Lease. In the event that you do not agree to the new Monthly Payments or do not submit a renewal form, the Lease shall expire by its terms on the termination date.

12. SELLING YOUR HOME

(a) If you sell your home you can,

(i) Transfer this Lease and the Monthly Payments.

If the person buying your Home meets _____ credit requirements, then the person buying your Home can sign a transfer agreement assuming all of your rights and obligations under this Lease.

(ii) Move the System to your new Home.

If you are moving to a new home in the same utility district, the System can be moved to your new home only pursuant to the Limited Warranty. You will need to pay all costs associated with relocating the System, execute and deliver to _____ an easement for the replacement premises and provide any third party consents or releases required by _____ in connection with the substitute premises.

(iii) Prepay this Lease and Transfer only the Use of the System

If the person buying your home does not meet credit requirements, but still wants the System, then you can (A) prepay the payments remaining on the Lease (See Section 16(f)(i) and (ii)), (B) add the cost of the Lease to the price of your home, and (C) have the person buying your Home sign a transfer agreement to assume your rights and non-Monthly Payment obligations under this Lease. The System stays at your Home, the new owner of your Home does not make any Monthly Payments and has only to comply with the non-Monthly Payment portions of this Lease.

(b) You agree to give _____ at least fifteen (15) days but not more than three (3) months' prior written notice if you want someone to assume your Lease obligations. In connection with this assumption, you, your approved buyer and _____ shall execute a written transfer of this Lease. _____ may charge you a transfer review fee of two hundred fifty dollars (\$250). Unless we have released you from your obligations in writing, you are still responsible for performing under this Lease. If your buyer defaults on this Lease and we

have not yet signed the transfer agreement, you will be responsible for its default. We will release you from your obligations under this Lease in writing once we have a signed transfer agreement with the person buying your Home (provided such person has been approved as a transferee by _____ in writing).

(c) If you sell your home and can't comply with any of the options in subsection (a) above, you will be in default under this Lease. Section 12(a) includes a home sale by your estate or heirs.

(d) EXCEPT AS SET FORTH IN THIS SECTION, YOU WILL NOT SUBLEASE, ASSIGN, SELL, PLEDGE OR IN ANY OTHER WAY TRANSFER YOUR INTEREST IN THE SYSTEM OR THIS LEASE WITHOUT OUR PRIOR WRITTEN CONSENT, WHICH SHALL NOT BE UNREASONABLY WITHHELD.

13. LOSS OR DAMAGE

(a) Unless you are grossly negligent or you intentionally damage the System, _____ will bear all of the risk of loss, damage, theft, destruction or similar occurrence to any or all of the System. Except as expressly provided in this Lease, no loss, damage, theft or destruction will excuse you from your obligations under this Lease, including Monthly Payments.

(b) If there is loss, damage, theft, destruction or a similar occurrence affecting the System, and you are not in default of this Lease, you shall continue to timely make all Monthly Payments and pay all other amounts due under the Lease and cooperate with _____ at _____ sole cost and expense, to have the System repaired pursuant to the Limited Warranty.

14. LIMITATION OF LIABILITY

(a) No Consequential Damages
SOLARCITY'S LIABILITY TO YOU UNDER THIS LEASE SHALL BE LIMITED TO DIRECT, ACTUAL DAMAGES ONLY. YOU AGREE THAT IN NO EVENT SHALL EITHER PARTY BE LIABLE TO THE OTHER FOR CONSEQUENTIAL

**Do Not Sign Anything
You Do Not Think Can
Be Enforced in a Court
of Law**

11/17/12 04 35 28 FAX 4021942

ADDITIONAL DESCRIPTION FORM

(TO BE USED WITH FORMS 201, 202, 203, 204, 205 AND 220)

License # _____ RE: Project: Trust
 Mira Mesa Blvd-Sun Lenox Ave
 San Diego, CA 92161 La Mesa
 Tel: _____

THIS IS AN ADDITIONAL DESCRIPTION OF THE WORK TO BE PERFORMED BETWEEN THE ABOVE NAMED PARTIES AGED

TRUST
has office papers Roofing replace + Solar panels
 at pos 10

- *Roof: remove old roof and haul away.
- *replace any wood beams (up to 2x6) (sat. under)
- *install new 2x4 flaking on all edge of the house
- *install new flaking on all pipes and vents + chimney
- *install new 2x6s felt paper on lower gable, patio
- *install new 2x4s down system on patio
- *install new 20 years shingles (color to be _____)
- *paint and seal all pipes and vents.
- *clean upon completion.

* Solar panels - bills are 600-800 kWh
 12 BP Solar 230w plus 1 spa with 3000 w load in water
~~to~~ install panels up to code
 to lower cost to ~\$

* upgrades panel to fit new
 Solar system TRUST

cost of solar system \$29,196.
 Tax, labor and material
 included.

Contractor: _____ Owner or Agent: _____

DATE: _____

Precautions to Take When Choosing an Installer

- The state government will not grant rebates or credits for a solar system installed by an unlicensed contractor.
- A sales representative must be a Registered Home Improvement Salesperson (HIS) with CSLB. Ask to see their registration and photo identification.

Precautions to Take When Choosing an Installer

- Know all parties involved in the install and ask if there is a subcontractor involved.
- Often companies will subcontract out their jobs. If so, know their license number and payment schedule. Knowing these details can help prevent a mechanic's lien against your home.

More information on liens from the CSLB

<http://www.cslb.ca.gov/consumers/legalissuesforconsumers/mechanicslien/understandingmechanicsliens.asp>

Keeping Records



- Prepare to sign all documents at a location with either a scanner or copier.
- Make sure that you get a copy of the contract right after you and the seller/installer have signed the documents.
- If any changes are made to the system, the price, or the payment terms, make sure that you sign off on these changes with your initials and maintain copies of the updated contract or the addendum that clearly spell out these changes.

Financing Options

- **Lease**
Fixed \$ per Month
- **Power Purchase Agreement (PPA)**
Fixed \$ per kWh produced by system
- **Home Equity Loan**
Bank loan secured with equity in home (if available)
- **San Diego Metropolitan Credit Union**
Energy Efficient & Solar Loan Program



Owning	Leasing
<i>What are you buying?</i>	
Buying an asset	Buying a service, usually with a purchase option
<i>What is included in the purchase?</i>	
Generally will not include inverter replacement, O&M, insurance, may include monitoring	Generally includes O&M, inverter replacement, insurance, monitoring
<i>What are the tax implications?</i>	
Need to have the tax appetite to make use of the 30% ITC. If financed through home equity loan, then get tax deduction	Solar services provider has the tax appetite for the 30% ITC AND can make use of <i>commercial</i> depreciation tax benefits
<i>What are the risks?</i>	
Responsible for O&M	Longevity of the solar services provider
<i>What happens if I move?</i>	
New homeowner buys the asset	Can transfer payments to new homeowner or must buy out the remainder of the contract at 'fair market value'
<i>What are the financial benefits?</i>	
Return on investment in the form of lower electricity bills and increased home value	No or little upfront cost, benefits from commercial depreciation tax credit, usually cash positive or neutral in year 1

Homeowners Insurance

- Call your homeowners insurance company to add your solar electric system to your policy
 - This may be a task you want to do before signing a contract



Bid Comparison

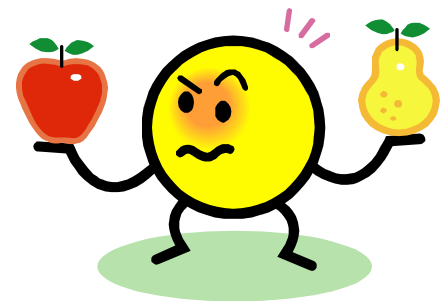


Bid Comparison

- **DC Rating**
Manufacturer's rating of the module's ideal output
- **CEC-AC Rating**
CEC's rating which accounts for module and inverter efficiencies.
PTC rating is the estimated module output under
Performance Test Conditions

We recommend getting bids in CEC-AC

Reference EPBB Calculator for CEC-AC system size (csi-epbb.com)



Bid Comparison - Efficiency

	Bid 1	Bid 2	Bid 3
Panel Quantity, Make, & Model (PTC rating)	12 Panel A (220 Watt) (PTC rating 196.6 Watts)	12 Panel B (220 Watt) (PTC rating 197 Watts)	12 Panel C (220 Watt) (PTC rating 194 Watts)
Inverter Quantity Make, & Model (efficiency)	1 Inverter X (95.5% efficiency)	1 Inverter Y (97% efficiency)	12 Micro Inverters Z (95% efficiency)
DC Rating	2640 Watts DC	2640 Watts DC	2640 Watts DC
CEC-AC Rating	2253 Watts CEC-AC	2293 Watts CEC-AC	2212 Watts CEC-AC
Total System Cost	\$14,238	\$34,853	\$18,625
Cost per watt CEC-AC	\$6.32/Watt	\$15.20/Watt	\$8.42/Watt

Bid Comparison - Cost

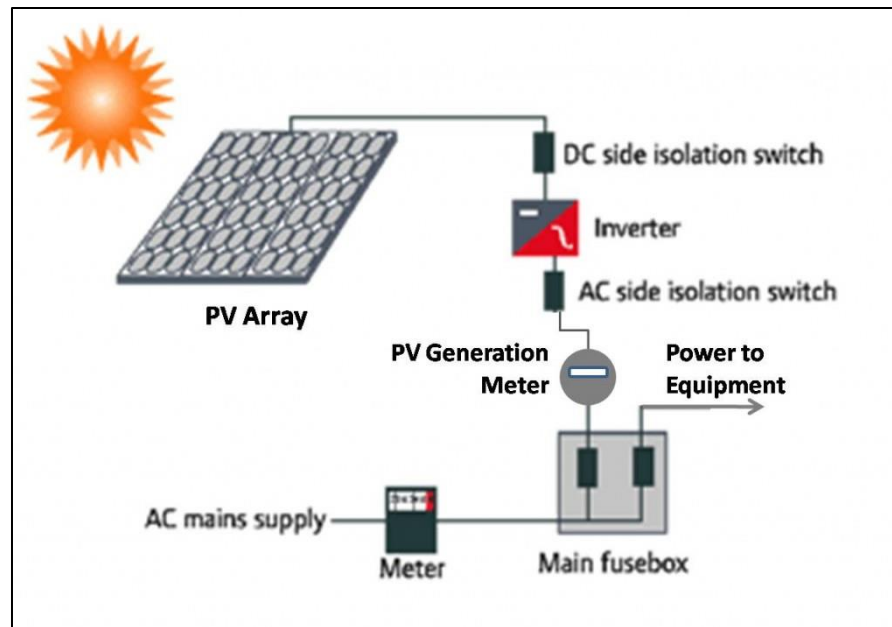
Annual Energy Usage 6,500 kWh

	Bid 1	Bid 2	Bid 3
System Size CEC-AC	2.99 kW	2.38 kW	1.47 kW
Estimated Annual System Production	5087 kWh	4048 kWh	2497 kWh
% of Usage Offset	78.27%	62.28%	38.41%
Annual Electric Bill Before	\$1,100	\$1,100	\$1,100
Annual Electric Bill After	\$175	\$315	\$560
Annual Savings	\$925	\$785	\$540

Bid Comparison

- Warranties
 - Equipment & Workmanship
- Performance Guarantees
- Performance Monitoring & Reporting Service (is it included?)
- Who will receive the rebate?

Which of the major components in a solar PV system represents the largest cost?



Cost Breakdown for Major Components

- Majority of the cost of an installed system are the PV modules ($\approx 50\%$).

Components	CSI Residential Program	
PV Modules	\$2.77/W	48%
Inverter(s)	\$.69/W	12%
Balance of System	\$2.32/W	40%
Total System Cost	\$5.78/W	100%

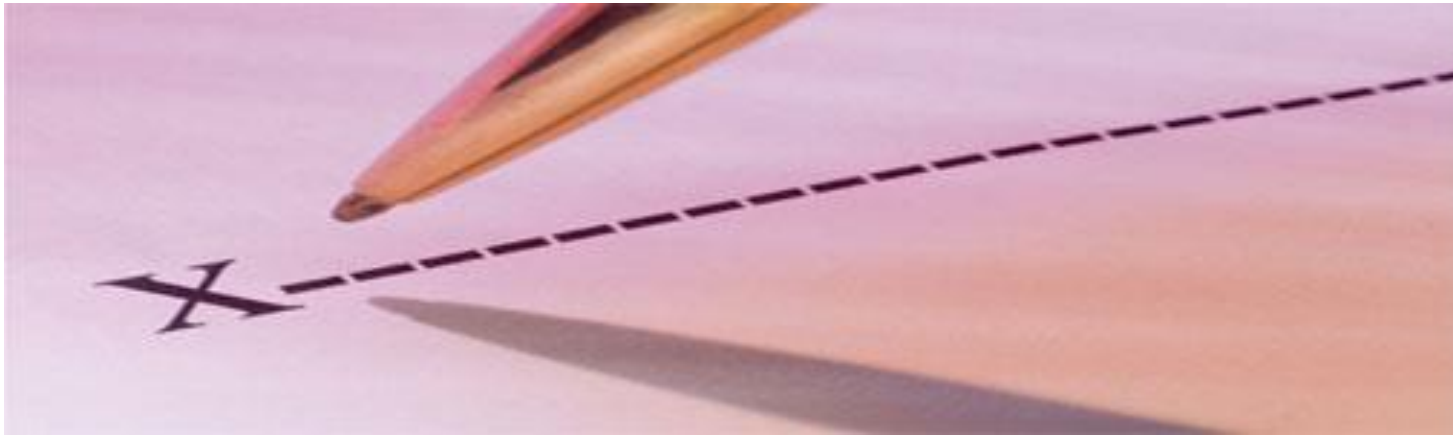
5 Minute Break



Contract Information



Name at least 3 details that should be included in every contract?



What to Look for in a Contract

1. Installer and Host Customer Information
2. System Size
3. Make/Model/Quantity of Panels and Inverters
4. Warranty Language
5. Work Schedule/Description of Work
6. Price/Payment Schedule



Installer and Host Customer Information

The installation contract must include the following contractual information:

- **Name, address and contractor's license number** for the company installing the system
- **Full name of the Host Customer**
- **Complete site address** for where the system will be installed
- **Original Signatures** from both the Seller and the Host Customer



John Hancock

System Size

- The EPBB Calculator is used to estimate the system size, the output of a system, and to calculate the incentive amount.
- **In order to calculate the EPBB, the following information is required...**
 - Make/Model/Quantity of Panels and Inverters
 - Tilt/Azimuth
 - Shading Analysis if not minimal shading
 - Mounting Method



System Size EPBB Calculator

<http://csi-epbb.com>

Incentive Calculator - CSI Standard PV

Site Specifications

Project Name:

ZIP Code:

Utility:

Customer Type:

Incentive Type:

PV System Specifications

PV Module:
215W Polycrystalline Module (189.4W PTC)

Number of Modules:

Mounting Method:

Inverter:
2110W (240Vac) Utility Interactive Inverter (94.5% efficiency)

Number of Inverters:

Shading: Minimal Shading

Array Tilt (degrees):

Array Azimuth (degrees):



System Size EPBB Calculator

Results

Annual kWh	8,353 (a)
at optimal tilt	8,224 (b)
facing south at optimal tilt	8,224 (c)
Summer Months	May-October
Summer kWh	4,655 (e)
at optimal tilt	4,672 (f)
facing south at optimal tilt	4,672 (g)
CEC-AC Rating	4.624 kW
Design Correction ²	99.636%
Geographic Correction ³	100.000%
Installation Correction ⁴	100.000%
Design Factor⁵	99.636%
CSI Rating⁶	4.607 kW
Incentive Rate	\$0.20/Watt
Incentive⁷	\$921

EPBB Calculator

<http://csi-epbb.com>

Make/Model/Quantity of Panels and Inverters

- A clear description of the system components is required.

Equipment & System Installation Description

ITEM

7.990 kW DC (STC) photovoltaic system

Meter Number for this site: 01788742

Modules: Yingli Green Energy:YL235P-29b (34)

Inverter(s): Fronius USA:IG Plus 3.0-240 (1)

Inverter(s): Fronius USA:IG Plus 5.0-240 (1)

Free SolarGuard Solar Energy Monitoring System (20 Years)

Mounting System

System Installation

System Components

www.gosolarcalifornia.ca.gov



The screenshot shows the GO solar CALIFORNIA website. At the top left is the logo. Navigation links include 'About | Consumers | Professionals | Equipment | Resources | Solar Basics | News & Media | Contacts'. Logos for the Center for Sustainable Energy, Pacific Gas and Electric Company, and Southern California Edison are displayed. A red box highlights a dropdown menu with the following items: PV Modules, Other Solar Electric Generating Technologies, Inverters per SB1 Guidelines, System Performance and Revenue Grade Meters, Performance Monitoring Service Providers, Performance Data Providers, Solar Water Heating Systems, and Adding Equipment. A yellow box highlights a statistics section titled 'Leads the Nation' with two metrics: '\$8.79 avg cost/watt <10kW' and '\$7.65 avg cost/watt >10kW', with a 'last updated: 1.05.11' note. Below the navigation are buttons for 'View Solar Statistics', 'Find an Active Solar Contractor', 'Download Current CSI Data', 'Search for Applications', and 'FAQs and Facts'. The main content area features a 'Welcome to California' heading and a paragraph about the California Solar Initiative (CSI). Two charts are present: a stacked bar chart for 'Program Totals' and a line chart for 'Cost by Quarter'.

Program Totals


Program	PG&E	SCE	CCSE
112.3	31.0	13.8	14.4
135	85.7	22.3	42
183.7	180	180	180

Cost by Quarter

Quarter	Cost (\$/watt)
Q1 '07	10.0
Q2 '07	10.0
Q3 '07	10.0
Q4 '07	10.0
Q1 '08	10.0
Q2 '08	10.0
Q3 '08	10.0
Q4 '08	10.0
Q1 '09	10.0
Q2 '09	10.0
Q3 '09	10.0
Q4 '09	10.0
Q1 '10	10.0
Q2 '10	10.0
Q3 '10	10.0
Q4 '10	10.0

System Components

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List of Eligible SB1 Guidelines Compliant Photovoltaic Modules

Updated as of January 10, 2011

Updated as manufacturer's provide laboratory-tested data per Appendix I of the [Guidelines for California's Solar Electric Incentive Programs \(Senate Bill 1\), Second Edition](#).

Beginning July 1, 2009, only modules which are on the SB1 Guidelines compliant module list will be eligible for incentives in California.

Please note that PTC values on this module list are calculated using laboratory-tested parameter values. After July 1, 2009, if a California solar electric incentive program uses PTC values, the SB1 Guidelines compliant PTC values must be used for new reservation applications.

Manufacturer Name	Module Model Number	Description	BIPV*	PTC**	Notes
1Soltech	1STH-215-P	215W Polycrystalline Module	N	189.4	
1Soltech	1STH-220-P	220W Polycrystalline Module	N	194.0	
1Soltech	1STH-225-P	225W Polycrystalline Module	N	198.5	
1Soltech	1STH-230-P	230W Polycrystalline Module	N	203.1	
1Soltech	1STH-235-WH	235W Monocrystalline Module	N	205.1	
1Soltech	1STH-240-WH	240W Monocrystalline Module	N	209.6	

What are the warranty requirements for projects receiving the CSI rebate?



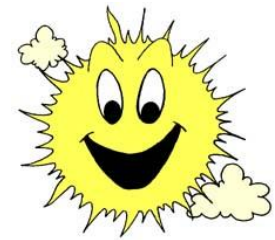
Warranty Requirements for CSI

- All equipment (PV modules, inverters...) shall have a **minimum 10-year manufacturer performance warranty** to protect against degradation of more than 15% from their originally rated electrical output.
- **All contractors** shall provide a **minimum 10-year installation warranty** to provide for no-cost repair and replacement of the system for any expenses not otherwise covered by the manufacturer.



Work Schedule/Description of Work

- Description of the work to be performed
 - Clear concise description of the scope of work that you feel comfortable with and understand.
- Work Schedule
 - Average time between signing a contract and commissioning is 90 days
 - Average time of installation is 2-3 days



Price and Payment Schedule

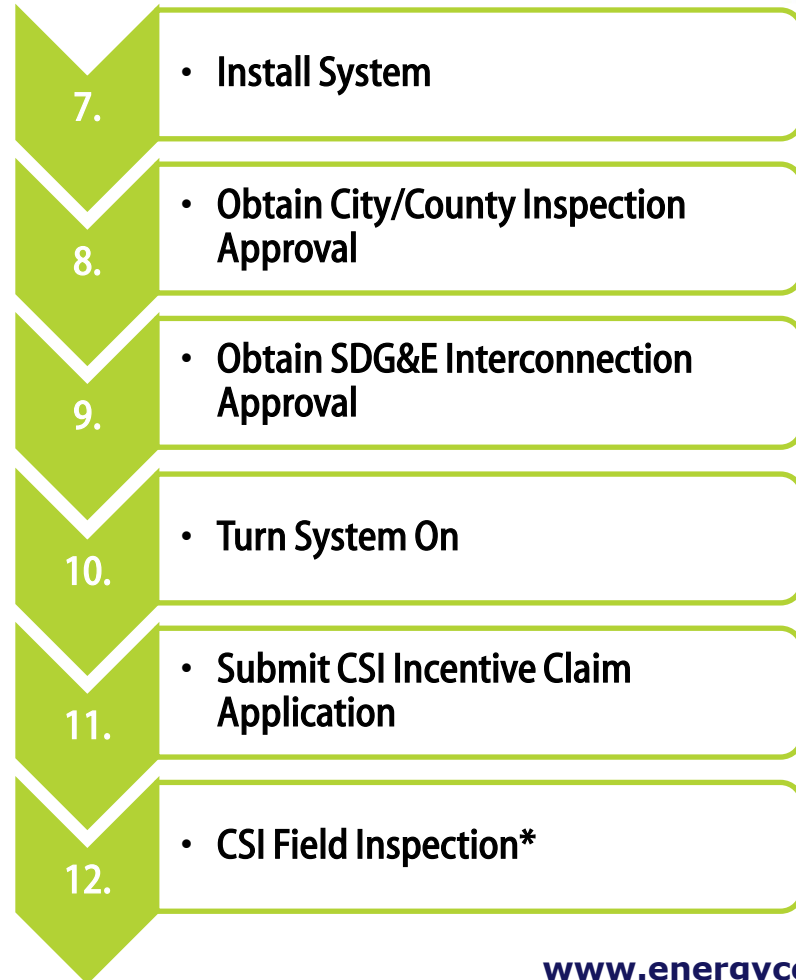
- The **total purchase price** of the system installation before applying the incentive including payment terms (payment dates and dollar amounts) is required to be on all contracts
 - Down Payment - \$1,000 or 10% of total project cost (which ever is less)
 - Late payment repercussions
- Designation of the **CSI rebate**
 - Who will receive the rebate?
 - How much is it buying down?



Solar Installation Flow Chart



If Applicable*



Quick Recap

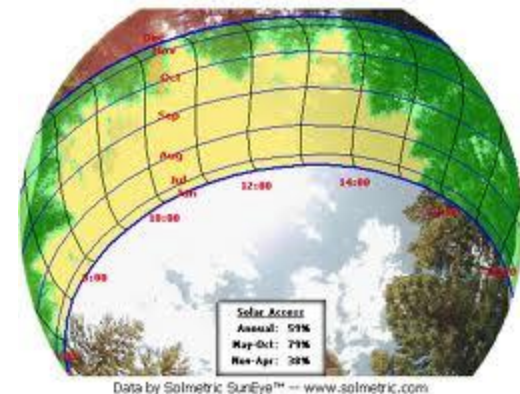
Now you know ...

- About available financing options
- How to compare bids
- What details are required in your solar purchase agreement
- About the solar installation process



Shade Analysis by CCSE

- Ryan Robinson – Inspector/Shade Analyzer
 - Shade Analysis
 - Answer questions
 - It's free



Upcoming Events

- September 18 – Application Process Made Easy
- September 20 – San Diego Sustainability Tour
- September 21 – Oceanside – Energy Efficient Home Tour
- September 28 – La Mesa – Energy Efficient Home Tour
- September 28 – Electric Vehicle Day



Online Resources

- energycenter.org – *CCSE Website*
- ccse.powerclerk.com - *CSI Online Project Management Tool*
- csi-epbb.com - *CSI Program Incentive Calculator*
- csi-trigger.com - *CSI Statewide Trigger Point Tracker*
- www.gosolarcalifornia.ca.gov – *CPUC and CEC Website*
- www.cslb.ca.gov – *Contractor State License Board*
- www.bbb.org – *Better Business Bureau*
- www.yelp.com - *Customer Reviews*
- www.californiasolarstatistics.com – *CSI Program Data*

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<https://energycenter.org/california-solar-initiative/homeowners/events>

