



City of Banning

Building & Safety Department
99 E Ramsey Street, P.O. Box 998
Banning, California 92220
(951) 922-3120

PHOTOVOLTAIC (SOLAR) SYSTEMS

**** Applicant must obtain approval from City of Banning Electric Department prior to submittal of plans to the Building and Safety Department. The Electric Department can be reached via email at ecassadas@banningca.gov or by phone at (951)922-3260 for further details on the submittal process.

A Building permit is required to install a solar system. A separate Planning and Fire department review is NOT required for qualified small residential Rooftop Solar Systems.

Required Documents:

- Complete plan set (Stamped approved by BEU) and BEU service contract
- Calculations
- Solar Eligibility checklist
- Manu Specs for PV modules, inverter, batteries, conductors, disconnects and over-current devices.
- Signed Homeowner Solar Contract
- Contractor state license, Copy of City business license, and Worker's Comp Declaration

SUBMITTAL PROCESS:

All solar submittals must be submitted through the online portal SmartGov. Review time is about 3-5 business days not including intake and processing.

MINIMUM SUBMITTAL REQUIREMENTS FOR RESIDENTIAL SOLAR:

1. Plot plan showing the location of the PV modules, route of conduit / conductors, the equipment (inverter, batteries, etc.) and the electrical service interface.
2. Single-Line Diagram
3. Attachment details of the PV modules to the support rack and the rack to roof structure.
4. Grounding detail for the connection to the PV modules and bonding of the AC system.
5. Calculations for the added load to the roof **if it is over 6.5 lbs per s.f submit roof load calculations**.
6. Manufacturer's Specifications for PV modules, inverter, batteries, conductors, disconnects and over-current devices.
7. Justification for all conductor and over-current device sizing.
8. Signage locations for permanent plaque per California Electrical Code.
9. Roof plan showing 3' setbacks per California Fire Code
10. The City of Banning is in a Special Wind Region. Provide design per 130 MPH (stand-off maximum spacing @ 48" O.C.).

11. A roof Plan showing roof layout, PV panels and the following fire safety items: approximate location of roof access point, location of code compliant access pathways, PV system fire classification and the locations of all required labels and markings.
12. A site plan showing all structures on property, property lines, PV panels, service meter, subpanels, inverters, panels, racking system, support mounts, Etc.
13. Provide structural drawings and calculations stamped and signed by a California licensed architect or registered professional civil or structural engineer, along with the following information:
 - a. The type of roof covering and the number of the roof coverings installed.
 - b. Type of roof framing, size of members and spacing.
 - c. Weight of panels , support locations and method of attachment.
 - d. Framing plan and details for any work necessary to strengthen the existing roof structure.
 - e. Site-specific structural calculations
 - f. Wind Design: 130 MPH ultimate Design Wind Speed (Vult), Exposure C (max. stand- off spacing @ 48 O.C. for landscape).
 - g. Where an approved racking system is used, provide documentation showing manufacture of the rack system, maximum allowable weight the system can support, attachment method to the roof or ground, and product evaluation information or structural design for rack system.

INSPECTIONS:

Once permit to construct the solar installation has been issued and the system has been installed, it must be inspected before final approval is granted for the solar system. TWO on-site inspections are required, **First inspection** will be performed by the Electric Department at (951) 922-3260. **Second inspection** will be performed by the Building & Safety at (951) 922-4820. For Building & Safety inspection requests received by 4pm on a **business day** will be scheduled for the next business day.

**** If Main panel upgrade is included, this will be required to be inspected separate from the solar, from both BEU and Building & Safety.

COMMON POINTS OF INSPECTION:

1. Number of PV modules and model number match plans and spec sheets.
2. Array conductors and components are installed in a neat and workman-like manner.
3. Conductors ratings and sizes match plans.
4. Appropriate signs are properly constructed, installed and displayed, including the following:
 - a. Sign identifying PV system attributes at DC disconnect
 - b. Sign identifying AC disconnect
 - c. Warning sign indicating Dual Power Sources
5. Equipment ratings are consistent with application and installed signs on the installation.

**** Attached are the initial forms required to be completed and submitted to Banning Electric Utility. These are not Building and Safety Forms. Please, see Banning Electric for further information.

These forms can also be found under the “Banning Electric Utility” web page @ <http://www.banning.ca.us/573/Solar>

CALIFORNIA SOLAR CONSUMER PROTECTION GUIDE

PUTTING SOLAR ON YOUR HOME IS AN IMPORTANT FINANCIAL DECISION.
DON'T SIGN A CONTRACT UNTIL YOU READ THIS DOCUMENT!

In many areas of California, you cannot connect a residential solar system to the electric grid until you read, initial, and sign this document. (*The requirement to sign this document does not apply to solar systems that are part of new home construction or multi-family buildings, and it does not apply to solar thermal systems.*)

TAKE YOUR TIME.



WATCH OUT FOR FALSE CLAIMS!



MAKE SURE THE SOLAR PROVIDER HAS A VALID CONTRACTOR LICENSE.



Customer Initial Here _____ (1/4)

MAKE SURE TO READ AT LEAST THE NEXT 3 PAGES

If you are considering signing a contract for a residential solar system.

Most solar providers are honest and fair. However, there are still some false claims you need to watch out for. Do not do business with a salesperson that makes one of these false claims.



False claims to watch out for

FALSE

You can get free solar energy at no cost to you.



The Truth

Solar energy is rarely free. An honest company will be upfront about all the costs you will pay over time.

- After going solar, you will typically pay a small electricity bill every month, depending on the utility billing rate. See page 16 for an example.

FALSE

You will never pay an electricity bill ever again after a solar system is installed.

TRUE

After going solar, you will typically pay a small electricity bill every month depending on the utility billing rate. See page 16 for details.

- Customers who take out a solar loan or sign a lease will also receive a monthly bill from a loan company or solar provider.
- If you use PACE (Property Assessed Clean Energy) financing, you will also make a payment once or twice a year with your property taxes or monthly with your mortgage payment.

FALSE

Time is running out and you must quickly sign an electronic tablet to get solar.

TRUE

An honest salesperson would never rush you to sign anything without giving you time to review what you are signing.

- California law requires that a salesperson show you the contract terms before you sign.

* If you think you have been a victim of solar fraud, report the incident to the Contractors State License Board (CSLB) at 800-321-CSLB (2752) or www.cslb.ca.gov/consumers



Know Your Rights

YOU HAVE THE RIGHT...

to a copy of a solar contract and financing agreement in the language in which the salesperson spoke to you.

If a solar provider comes to your home to sell you solar panels and speaks to you in a language other than English (such as Spanish), you have the right to a copy of the contract in that language.

YOU HAVE THE RIGHT...

to read this entire 22-page guide before signing a contract.

Do not feel pressured to read this guide while the salesperson waits. Ask them to come back at a later date to allow you time to read it.

If you are a public utility customer, a solar provider must give you the time to read and sign this guide before you sign a contract for solar. If they do not allow you to read this document, they should not be allowed to interconnect your solar system to the electric grid.

YOU HAVE THE RIGHT...

to a Solar Disclosure Document from your solar provider.

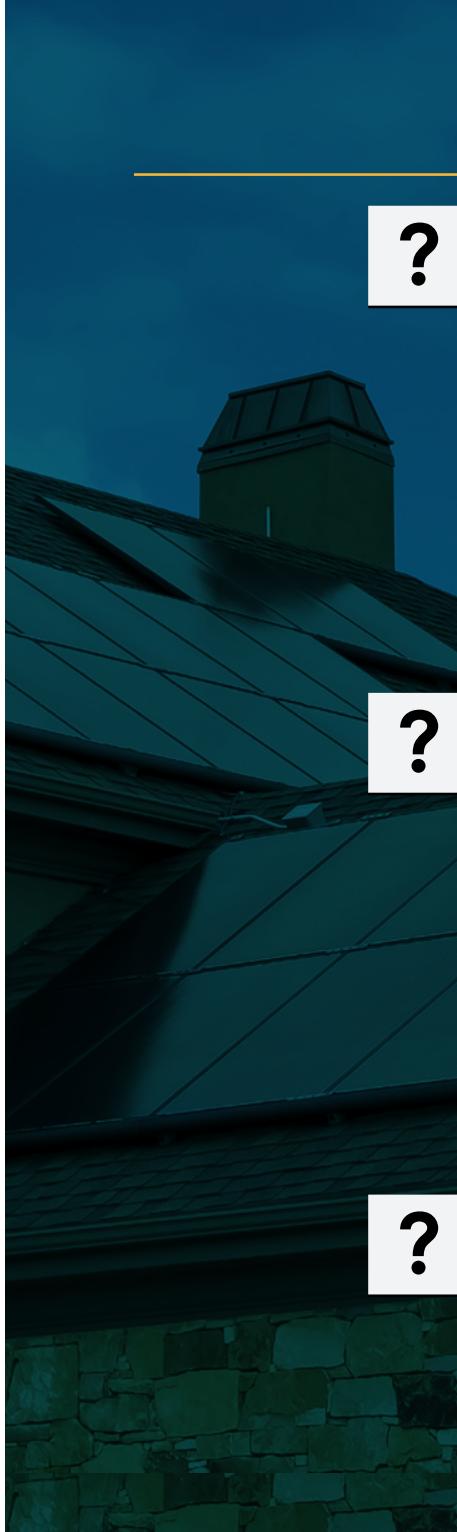
By law, a solar provider must provide you with a completed Solar Energy System Disclosure Document created by the Contractors State License Board (CSLB). This one page document shows you the total costs for the solar energy system. A blank version of this document is available at www.cslb.ca.gov/contractors/SolarSheet.aspx.

YOU HAVE THE RIGHT...

to a 3-day cancellation period after signing a contract.

You have at least three business days to cancel your contract for any reason. You may cancel the contract by emailing, mailing, faxing, or delivering a notice to your solar provider by midnight of the third business day after you received a signed, dated copy of the contract. Note that different rules may apply for contracts negotiated by a company's place of business.

If your solar provider refuses to cancel the contract, report them to the Contractors State License Board at 800-321-CSLB(2751) or www.cslb.ca.gov/consumers.



Ask a Solar Provider These Initial Questions Before You Sign a Contract



What is your Contractors State License Board (CSLB) license number?

Ask for a proof of the license. Then check the license to make sure it is valid by going to www.cslb.ca.gov/consumers or calling 800-321-CSLB (2752).

- The license must be active and in classification A (General Engineering Contractor), c-46 (Solar Contractor), C-10 (Electrical Contractor), or B (General Building Contractor) in order to be valid.
- CSLB License Number is: _____

If your solar provider does not have a valid contractor license, do not sign a contract with them and report them to the CSLB.



What is the total cost of the solar energy system?

If you are considering a solar loan, lease, or power purchase agreement, also ask:

- Is there a down payment?
- How much will I pay per month? When will these payments increase and by how much?

If you are considering PACE financing, also ask:

- How much will I pay once or twice a year with my property taxes or monthly with my mortgage?



If I sell my home, what are my options and what do I need to do?

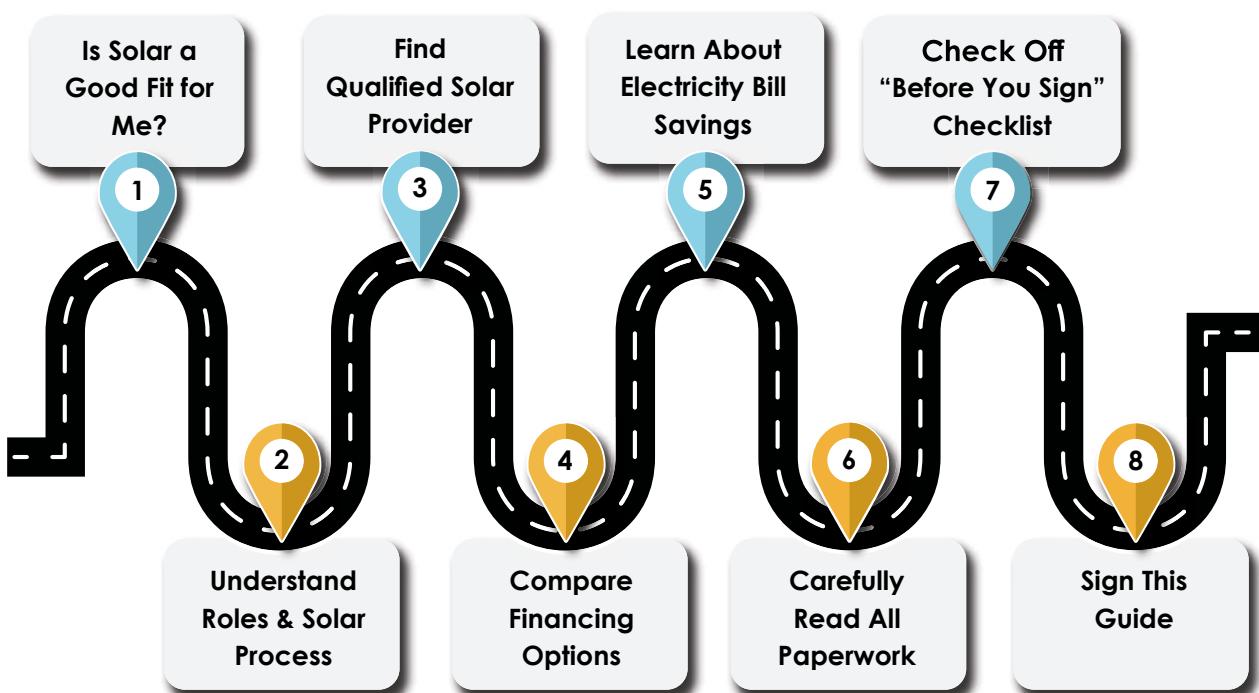
Ask your solar provider, lender, or PACE administrator to show you where in the contract it describes what happens when you sell your home.

For other important questions to ask a solar provider before you sign a contract, go to page 10 of this guide.

Ok, I read these 3 pages. Now What?

- For a step-by-step guide for how to go solar, proceed to the next page. This is recommended, even if you've already started the solar process!
- If you are getting ready to sign a contract, skip to the "Before You Sign" checklist, on page 22 of this guide.

Make sure to get **3 bids** from different solar providers before you sign a contract. See page 9 of this guide for more details.



1

STEP 1: Is Solar a Good Fit for Me?

Solar photo-voltaic panels can capture sunlight on your roof or property and convert it into electricity. This electricity powers the needs of your home, such as lights, electric vehicles, and appliances.

Before you consider getting solar at your home, ask yourself:



Am I a good candidate for rooftop solar?

- Does my roof receive a good amount of sunlight or is it mostly shaded? What direction does the roof face? Roofs that are mostly shaded or face due north are not good candidates for solar. If you plan to replace your roof soon, you should replace it before installing a rooftop solar system.
- If your roof is heavily shaded or isn't in great condition, or if you are a renter, community solar programs could be a good fit for you. With community solar, you receive 50-100 percent of your electricity from solar projects located across California. Community solar programs vary and may increase your electricity bill or provide an electricity bill savings. Contact your electricity provider for more information.



Have I made my home energy efficient first?

Making your home energy efficient before going solar can decrease your overall energy use and reduce the size of the solar system you need, potentially saving you thousands of dollars. Call your electricity provider or check their website for energy efficiency tips and advice on how to get an in-person home energy assessment.

Solar Providers

Solar providers are the companies that sell you solar and send installers to your home. Sometimes they provide financing. They must be licensed. See page 4.

Installers

Installers are sent by Solar Providers to your home to check roof, ground and electric conditions and to install the solar system. They must be licensed like a Solar Provider. See page 4.

Salespeople

Salespeople work for Solar Providers and may call you or knock on your door. They must be registered, with some limited exceptions. Ask for their “Home Improvement Salesperson (HIS) registration” and check it at 800-321-CSLB (2752) or www.cslb.ca.gov.

Lenders

Lenders provide you with financing if you have a solar loan or PACE financing.

PACE Administrators

PACE administrators manage PACE financing programs. They must be licensed. Check their license at <https://docqnet dbo.ca.gov/licensesearch>.

Electricity Providers

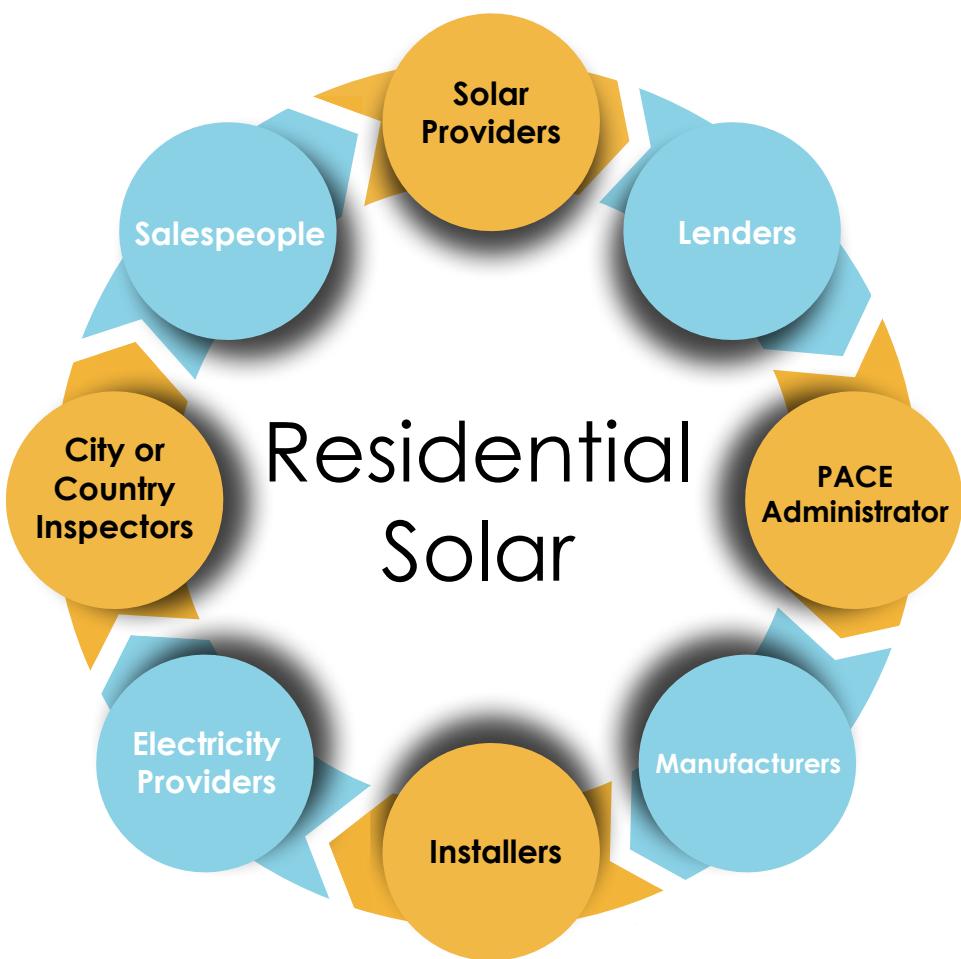
Electricity providers interconnect your solar system to the electric grid and send you electricity bills that may include solar bill credits.

Manufacturers

Manufacturers are the companies who make solar equipment. They provide most solar warranties for purchased systems.

City/Utility Inspectors

City/utility inspectors come to your home to make sure the system is up to code to ensure your health and safety.





Overview of a Typical Rooftop Solar Process

BEFORE YOU SIGN A CONTRACT

- You** decide if rooftop solar is a good fit for you (see page 5)
- You** get a home energy assessment to make your home more energy efficient (see page 5)
- You** research Solar Providers and compare at least 3 bids (see page 8)
- Solar Provider...** provides you with solar contract, Solar Disclosure Document, and this Solar Consumer Guide
- You** qualify for financing (if needed)
- Lender.....** writes up financing agreement (if needed)
- You** review solar contract, Solar Disclosure Document, and any financing agreement (see page 18)
- You** go through checklist on page 21 of this Solar Consumer Guide
- You** sign this Solar Consumer Guide, solar contract, and financing agreement

AFTER YOU SIGN A CONTRACT

- Installer** performs a home site visit to confirm assumptions and check roof, ground, and electric conditions
- Solar Provider** finalizes system design and applies for building permit with city or country agency
- Installer** installs the solar system (only after receiving city/county permit)
- City/Utility Inspector** inspects system for building permit compliance
- Solar Provider** submits city/county inspection approval to electricity provider
- You** turn on system *after* receiving written approval from electricity provider
- Electricity Provider** sends you your new self-generation/net-billing electricity bill (see page 16)
- Lender/Solar Provider ...** sends you first bill for solar system or solar energy*

*IF YOU USE PACE FINANCING,

you will not receive a bill from a Lender or Solar Provider (the last step above). Instead your payments will be due once or twice a year with your property taxes or monthly with your mortgage payment.



It typically takes 1 to 3 months after you sign a contract for the solar system to be installed at your home.



After the solar system is installed, it typically takes 2-3 weeks to receive approval from your electricity provider to turn your system on. It could take longer depending on your circumstances.

Find Solar Providers that Serve Your Neighborhood

Go to www.cslb.ca.gov, a government website, and click on the “Find My Licensed Contractor” search on the right-hand side of the page. Enter your city and one of the following license classifications: C-46 (Solar Contractor), C-10 (Electrical Contractor), or B (General Building Contractor).

Go to www.CaliforniaDGStats.ca.gov, a government-funded website, to enter your zip code and see a list of Solar Providers and recent installation costs. Note that these costs are not verified by the government.

Go to www.energysage.com to research and shop for solar, financing, and energy efficiency options.

Ask friends and neighbors who had solar installed at least a year ago if they recommended a Solar Provider and why.

Narrow Down the List to Qualified Solar Providers

First, make sure Solar Providers you consider have a valid license from the CSLB. It is illegal for Solar Providers and their Installers to conduct business without a license.

- Go to the Contractors State License Board (CSLB) website at www.cslb.ca.gov/consumers or call 800-321-CLSB (2752) to see if the Solar Provider and Installer licenses are active and valid. The licenses must be in the classifications: C-46 (Solar Contractor), C-10 (Electrical Contractor), B (General Building Contractor), or A (General Engineering Contractor).

Find out how long the company has been in business and how many installations they have done.

Check out trusted customer review websites online. Since some websites may not be neutral, check a few different websites to make sure reviews are consistent.

It's a good sign if companies employ installers certified by the North American Board of Certified Energy Practitioners (NABCEP), a high standard in the industry.

Get Bids From At Least 3 Qualified Solar Providers and Ask Questions

After you narrow down the list of Solar Providers, separately ask each of them for a bid or price quote.

- Note that the best option for you is not necessarily the cheapest bid. A very low bid may indicate that a Solar Provider is trying to cut corners.

Don't hesitate to ask Solar Providers a lot of questions up front. A qualified company will be happy to answer all of them. A sample list of questions is on the next page.



Questions to Ask a Solar Provider Before You Sign a Contract

COMPANY BACKGROUND



What is your company's contractor license number from the Contractors State License Board (CSLB)? What is your Installer's contractor license number?

Will you subcontract with another company to install the solar system? If so, what is their CSLB contractor license number?

How long have you been in business and how many systems have you installed?

Can you provide me with three customer references to call or visit? These customers should have solar installed for at least a year.

DESIGN & ROOF



Is my roof a good candidate for solar? Why?

Does my roof need to be replaced before installing solar panels?

- If yes, how much will that cost, who will do it, what is their license number, and is there a roof warranty?

Why did you choose this specific design and size for the solar system you are recommending to me?

- Note that a system sized to cover all of your electricity needs isn't necessarily the best investment. Typically, a system is sized to around 80-85 percent of your electricity use from the previous year.

What steps will you take to ensure my roof won't leak?

Roughly how much will it cost to remove and re-install the panels if I need to replace my roof in the future, including inspection fees?

WARRANTIES & PERFORMANCE OF SOLAR SYSTEM



Are there warranties for the panels and inverters?

- If yes, how long do they last and who do I contact to replace these components?
- If equipment such as the inverter fails after the warranty period, how much will it cost to replace?

Are there warranties for labor/construction?

Are repairs and maintenance included in the contract? If yes, who should I contact for repairs?

Will I be able to monitor the performance of the system once it's installed? If so, how?

Does the solar provider offer a minimum energy guarantee (common with leases and power purchase agreements)?

- If yes, how will I be paid if the system does not produce as much energy as promised in the contract?

Is there an insurance policy that comes with the solar system, or do I need to take out additional homeowner's insurance? Note that this is especially important if you live in fire-prone areas.

What are my obligations in the contract if my solar system stops working due to a disaster like an earthquake or a fire?

Who has the right to claim the environmental benefits of the power generated by my system? (See "Getting Environmental Credit for Going Green" on page 17).

ELECTRICITY BILL SAVINGS ESTIMATE (see page 16)



Please beware of a solar provider who tells you solar is free - it is not. See page 2 for more information on false claims.

Explain to me why an electricity bill savings estimate is not a guarantee.

Even though I will continue to pay electricity bills after going solar, I can receive solar bill credits on my electricity bill. How does that work?

Does my electricity provider offer special rates for solar customers?

What electricity rate do you recommend I switch to for solar, and why?

How long will I be on that rate, and how can I compare rates on my electricity provider's website?

IMPACTS ON FUTURE SALE OF YOUR HOME



Will a solar system make it more difficult for me to sell my home or refinance?

For leases and PACE financed systems:

- What happens if the home buyer doesn't want the solar system or doesn't qualify to take on my lease or PACE financed system?
- Are there fees if I need to terminate the contract early to sell my house?
- Are there fees for transferring the lease or PACE financing to a new homeowner?

TIMELINE (see page 7)

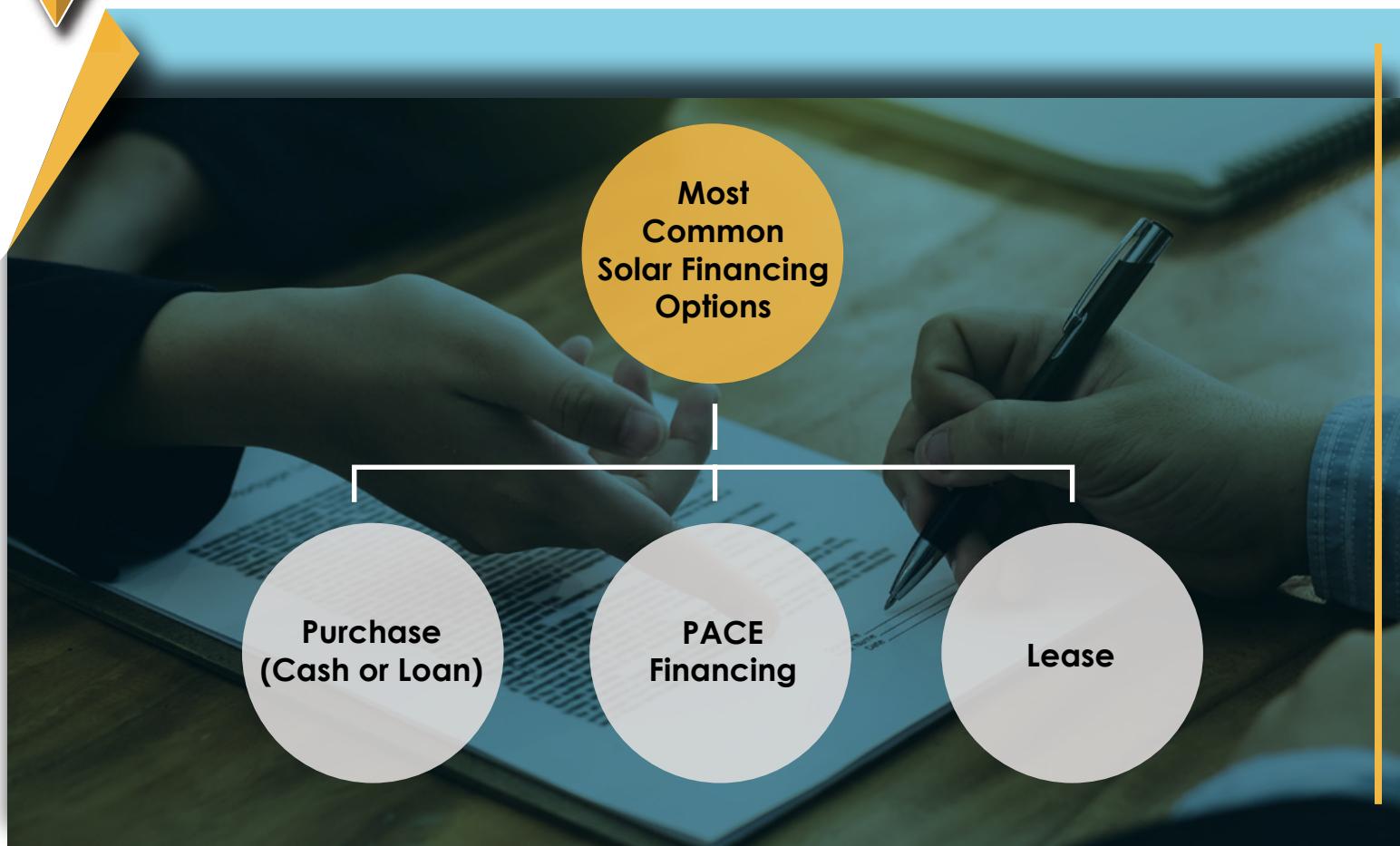


When do you propose to start and finish installing solar on my roof?

After installation is complete, will I receive written confirmation of permission to operate?

What situations would allow me to be released from a contract?

Do you want to know questions to ask about loans or financing?
Keep reading because those are in the next sections!



Side-By-Side Quick Financial Comparison

Purchase with Cash or Loan

PROS

- Typically greater return on investment.
- If you use a loan, little or no upfront costs.
- May increase value of home.
- You can directly receive tax credits and deductions. Consult tax professional to see if you qualify.

CONS

- You are typically responsible for repairs and maintenance. This may involve contacting different manufacturers, who could go out of business during the 10-20 year component life cycles.
- Some solar loans place a lien on your property. In those cases, if you do not make your payments, this could result in foreclosure or make it more difficult to sell your home or refinance your mortgage.



PROS



CONS

PACE Financing

- Little or no upfront costs.
- May have a longer repayment period than typical home improvement loan, which may be preferable.
- You may be able to receive tax credits and deductions. Consult tax professional to see if you qualify.

- PACE financing results in first-priority lien on your property. Your bank may require you to pay off the PACE assessment prior to refinancing.
- If you do not make your PACE payments, this could result in foreclosure or make it more difficult to sell your home or refinance your mortgage.
- You are typically responsible for repairs and maintenance. This may involve contacting different manufacturers, who could go out of business during the 10-20 year component life cycles.

Lease

- Little or no upfront costs.
- Solar Provider is responsible for all monitoring, maintenance, and repairs.
- Minimum energy production often guaranteed.

- Selling home may be more complicated than with a purchase system. Options typically are: the new owner must agree to take on the lease/agreement, you continue making payments, or you buy out the lease/agreement, which could be thousands of dollars.
- Solar Provider could go out of business during the contract period.



A Closer Look at Purchase (with cash or loan)

PURCHASE

You can purchase a solar system from a Solar Provider or Manufacturer with a solar loan or cash. In this approach, you own the installed system. Types of loans include:

- **Secured loans:** these require an asset that will serve as collateral for the loan - often that asset is your solar system.
- **Unsecured loans:** these do not require any collateral, similar to a credit card.

A secured loan is often preferred because it typically has lower interest rates.

Many Solar Providers work with lenders that offer solar loans, but you should check with banks and credit unions as well. Compare offers to make sure you are being offered a reasonable interest rate.

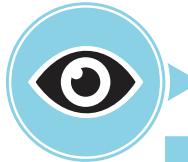
If you install and own a solar system by the end of 2020, there is supposed to be a 26 percent federal tax credit available (also referred to as the “ITC”). The federal tax credit is expected to drop to 22 percent for systems installed in 2021, and then drop to 0 percent for systems installed after 2021. If you have questions about the ITC please contact the Internal Revenue Service at <https://www.irs.gov/> or any other questions, including whether a loan is tax deductible, please speak to a Certified Public Accountant (CPA) for personal tax advice.

Unless you purchase a maintenance plan or your system comes with one, you will be responsible for any maintenance and repairs. Make sure you save the equipment warranties, particularly for the inverter, which may need to be replaced sooner than other equipment. If you sell your home, look for real estate agents and appraisers with experience selling homes with solar. You may include the system in the house sale just like any other major home component.



Questions to Ask a Lender About the Purchase of a Solar System with a Loan:

- ? What is the total cost of the loan over the entire course of the contract?
- ? How much will I pay up front, how much over time, and for how long?
- ? What is my interest rate? What is my annual percentage rate (“APR”)?
- ? Who do I contact if I have questions about my loan payments?
- ? Will a solar loan make it more difficult for me to sell or refinance my home? Will I need to buyout my loan? Who do I contact?



A Closer Look at PACE (Property Assessed Clean Energy)

PACE is a financing option that is available in some areas of California. In a PACE financing arrangement, a PACE Program Administrator finances the upfront costs of a solar system, which you then pay through an assessment on your property tax bill. With PACE financing, you own the solar system.

PACE financing lasts for a fixed term, typically around 10-30 years, and it is attached to your house. If you sell your house before you have fully paid the PACE assessment, a buyer may require you to pay off the assessment, which will be what is remaining in the balance, which could be thousands of dollars. Some mortgage lenders will not loan money to buyers to purchase properties with PACE liens unless the full assessment is paid.

Unlike Leases and Power Purchase Agreements that require monthly payments, PACE assessments are typically due once or twice a year, in larger lump sums, with your property taxes. Given this unique arrangement, it's important to understand how much you will owe and when, so that you can set aside enough money throughout the year to cover the amount.

If your house is mortgaged and you typically pay your taxes with an escrow or impound account, your mortgage company may increase the amount you pay monthly to *(continued on next page)*

cover the anticipated increase to your property tax bill. Discuss how PACE will affect your monthly mortgage payment before you sign an agreement.

Be aware that if you fail to make your PACE payments included with your property taxes or mortgage, your home could be put in foreclosure.



Questions to Ask a PACE Program Administrator About a PACE Financed System:

- ? What is the total cost of the financing over the entire course of the contract?
- ? Are lending rates competitive?
- ? How much will I owe for PACE financing when I pay my mortgage or property taxes?
- ? How many times a year will I owe this PACE payment?
- ? What happens if I want to sell or refinance my home? Will selling or refinancing be more difficult with PACE? Is there anything I have to do with the mortgage company?
- ? What are the penalties for failing to pay the assessment on time?
- ? Who do I contact if I have problems making my PACE payments?
- ? Is there a penalty for early payoff?



A Closer Look at a Lease

With a **Lease**, the Solar Provider owns the system on your property and “rents” it to you for a set period of time. A Solar Provider will install the solar system on your home, and you will make scheduled monthly payments in exchange for all the electricity the system produces. A typical Lease contract period is 20-25 years.

- If you sell your house before the Lease is over, you will have to pay the Solar Provider the remainder of the value of the Lease or transfer the contract to the new property owner. Make sure you understand the specific contract terms, since buying out a Lease can cost thousands of dollars.
- Payments for Leases will typically increase by a specified amount every year based on an “escalation clause” or “escalator.” Escalators are typically in the range of a 1 percent to 3 percent increase above the rate you paid in the previous year. Be cautious of entering into a contract with an escalator higher than that.
- There may be different ways to arrange Leases, such as paying more up front to reduce your monthly payments.



Questions to Ask a Lender or Solar Provider About a Lease

- ? What is the total cost of the solar system or solar energy over the entire course of the contract?
- ? How much will I pay up front, how much over time, and for how long?
- ? Will my payments increase over time? How much will they increase, and how frequently?
- ? Is there an option to make a down payment to reduce my monthly payments for a lease?
- ? What happens if I wish to end the Lease early?
- ? If I end my agreement early, will I owe a balloon payment and/or an early termination fee? If so, how much will I owe?
- ? Will a Lease make it more difficult for me to sell or refinance my home?

5

STEP 5: Learn About Electricity Bill Savings



Electricity Bill Savings Estimates Do Not Guarantee Savings

An electricity bill savings estimate is an educated guess about how much you could save with rooftop solar. Here are some reasons why it's possible that your savings could be lower than the estimate:

Electricity bill savings estimates are based on several uncertain factors, such as your future energy use. For example, if your family grows, you buy an electric vehicle, or you decide to turn up your air conditioning in the summer, your energy use will go up along with your electricity bill. This is what is known as "usage creep".

Electricity prices and rates can change over time. Your electricity provider may require you to switch to a different rate in the future (such as Time Of Use or TOU), which could change how much you save.

If you sell your home, you could incur additional costs. For example, if a buyer doesn't want to take on a Lease, you might have to buy out the contract, which could be thousands of dollars.

Before you sign a contract, ask yourself: if the savings end up being lower than the estimated monthly or yearly savings, does getting rooftop solar still make sense to me?

HOW ELECTRICITY BILL SAVINGS WORK

There is a special arrangement with your electricity provider that is called Net Billing. Net Billing allows you to get a financial credit on your monthly electricity bill when your solar system sends electricity back to the grid after first powering the electricity needs at your home. This credit is typically equal to the current market wholesale rate, depending on the utility.

Distributed Self-Generation

The City of Banning will utilize a bi-directional meter to measure the excess kWh generated by the customer's distributed energy resource and returned to the utility's distribution system each billing cycle. The City shall credit the customer's account for 100% of their excess kWh returned to the Banning Electric Utility at the Distributed Self-Generation Rate.

The Distributed Self-Generation Rate will be set at the average wholesale energy price during the hours when solar is producing. The rate is subject to administrative change if there are changes to the average energy prices.

Your Electricity Bill

Since the sun isn't always shining, solar customers also rely on electricity from their electricity provider. After your solar system is interconnected to the grid, your monthly electricity bill will summarize how much electricity you took in or "consumed" from your electricity provider, and how much electricity your solar system sent to the grid or "exported."

If you took in more than you sent out to the grid in any given month, you will see an overall charge on your bill. If you sent out more than you took in, you will see a credit. This credit is based on an average wholesale energy price. This is called a monthly net billing and credits cannot be carried over to the next month. There will always be a monthly minimum bill each month just like other customers.

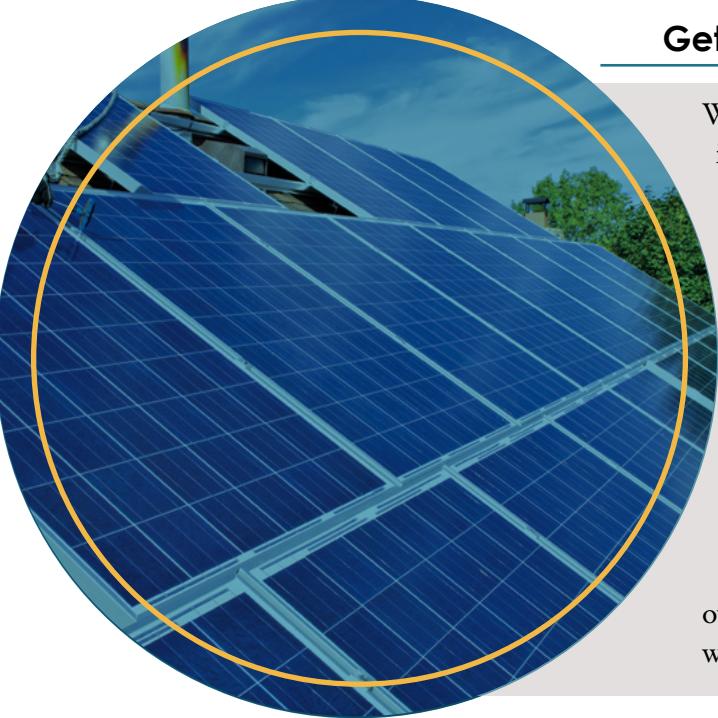
YOU WILL CONTINUE TO HAVE A BILL

(Comparison of a 1000 kWh monthly bill for standard and net billing)

STANDARD BILL for 1000 kWh (NO SOLAR)	
• Electric Monthly Charge	18.00
• Baseline Service 1000 kWh	152.32
• Public Benefit Program	4.85
• Water Customer Charge	22.22
• Water up to 12 CCF	9.00
• Sewer	21.73
• Trash	22.38
TOTAL \$250.50	

NET BILLING for total of 1000 kWh (700 Solar, 300 from grid, 50 sold back to BEU)	
• Electric Monthly Charge	18.00
• Delivered Charge 300 kWh	45.70
• Returned Credit (50 kWh)	-1.40
• Public Benefit Program	1.82
• Water Customer Charge	22.00
• Water up to 12 CCF	9.00
• Sewer	21.73
• Trash	22.38
TOTAL \$139.23	

Getting Environmental Credit for Going Green



When a residential solar system produces electricity, the system is eligible to receive Renewable Energy Certificates, or “RECs,” which are certificates that represent the renewable energy that is generated. If you purchase a solar system, you own the rights to these RECs and can make the claim that you’re producing clean energy and avoiding emissions of greenhouse gases by going solar. However, if you enter a Lease or PPA, the contract may state that the Solar Provider or someone else owns the RECs. If you do not own the RECs, they can be sold without your knowledge to other customers who use them to make environmental claims or comply with clean energy requirements. And with PACE financing, a local jurisdiction may own the RECs. If owning the RECs is important to you, ask your solar provider who will own the RECs, and check the contract fine print.

Combining Solar with Storage

When you install battery storage with your solar system, you can store unused solar electricity produced by your panels for use in the evening when the sun goes down. The software that comes with battery storage automatically determines whether to store the extra energy or export it to the grid to maximize cost savings. Battery storage can also provide limited back-up power.



STEP6: Carefully Read All Paperwork

THE SOLAR ENERGY SYSTEM DISCLOSURE DOCUMENT

This one-page document from the Contractors State License Board shows you the total costs for the proposed solar energy system. It also has information about your three-day right to cancel a contract. A Solar Provider is required to fill out this document. It may be placed as the cover page to the contract. See a blank version at www.csrb.ca.gov/contractors/SolarSheet.aspx.

CONTRACT

- The solar contract is the legally binding document between you and the Solar Provider. Make sure to read it carefully.
- Make sure everything you were promised is written in the contract. For example, many answers to the questions on pages 10 and 11 of this guide should be referenced in the contract.
- By law any contract for solar installation must include:
 - Contractor information, including business address and license numbers
 - Description of the project, including equipment installed and materials used
 - Contract price, plus finance charge and/or down payment if applicable
 - Approximate start and end date of the contract term
 - Notice of a 3-day right to cancel the contract (with limited exceptions)
- Ask the Solar Provider what situations would allow you to be released from the contract. For example, if your Solar Provider discovers a site visit that your roof is shaded in a way that wasn't expected, that could cancel the contract.

FINANCIAL PAPERWORK

- If you are purchasing a system with a solar loan, you will be asked to sign a separate financing agreement. The Lender will provide you with this separate agreement.
- If you are purchasing a system with PACE financing, you must sign: (1) a Financing Application and, (2) a Financing Agreement.
 - Before you sign the Financing Application, read it carefully to make sure all the information is correct, including your contact information, your income, and the cost of the solar energy system.
 - The separate Financing Agreement may be provided by the Solar Provider, the PACE administrator, or a financing institution.
- Make sure everything you were promised is written into any financial agreements. For example, many answers to the questions on pages 14-16 of this guide should be referenced in the contract.



ADDITIONAL RESOURCES

Low-Income Solar Programs

- **Grid Alternatives and DAC Program:**
866-921-4696 and www.gridalternatives.org/qualify

Contractors State License Board (CSLB)

- **CSLB 24-Hour Licensing and Consumer Information:**
800-321-CSLB (2752)
- **Check a Contractor License or Home Improvement Salesperson Registration:**
<http://www.cslb.ca.gov/OnlineServices/CheckLicenseII/CheckLicense.aspx>
- **CSLB Solar Smart:**
www.cslb.ca.gov/Consumers/Solar_Smart
- **CSLB Solar Energy System Disclosure Document:**
www.cslb.ca.gov/contractors/SolarSheet.aspx

Department of Business of Oversight (DBO)

- **PACE Administrator License Check:**
<https://docqnet dbo.ca.gov/>
- **Filing a Complaint against PACE provider:**
www dbo.ca.gov

Solar Financing Guides

- **CESA Homeowner's Guide to Solar Financing:** search here:
<http://cesa.org/resource-library>
- **CESA/George Washington University Rooftop Solar Financing 101:**
<http://cesa.org/projects/sustainable-solar/videos>



ADDITIONAL RESOURCES (cont.)

Other Solar Guides

- **Solar Energy Industries Association (SEIA) Residential Consumer Guide to Solar Power:**
<http://www.seia.org/research-resources/residential-consumer-guide-solar-power>
- **Interstate Renewable Energy Council (IREC) Be Solar Smart Consumer Checklist:**
<https://irecusa.org/consumer-protection/consumer-checklist/>
- **CESA/George Washington University Choosing a Solar Installer:**
<http://cesa.org/projects/sustainable-solar/videos>
- **EnergySage Solar 101:**
<http://www.energysage.com/solar/101>
- **Go Solar California:**
<https://gosolarcalifornia.ca.gov/>



- **City of Banning Electric Utility:**
<http://banning.ca.us/57/Banning-Electric-Utility>

STEP 7: “Before You Sign” Checklist



Before you sign any documents, make sure you have completed these items!

Remember, take your time and don't feel pressured to sign a contract. If you feel you need more time to think about your decision or to do more research, do not sign anything until you do.

Consider making your home more energy efficient before getting solar. This could save you money. **See page 5.**

Get at least 3 bids for solar at your home. **See page 8.**

Check to make sure the Solar Provider's license is current and valid with the Contractors State License Board. **See page 4.**

Ask the Solar Provider for 3 customer references and call or visit them.

Ask the Solar Provider the contract questions on **page 4, 9, and 10** so you understand the terms of the solar contract.

If you are financing your system, ask the lender, Solar Provider, or PACE Program Administrator the finance questions on **page 13, 14, and 15**, so you understand the terms of your financing arrangement.

Read the critical information about electricity bill savings estimate on **page 16.**

Carefully read all the documents that the Solar Provider is asking you to sign. These usually include: 1) Solar Energy System Disclosure Document, 2) Contract, and 3) Financial Paperwork. It is important to also read the Utility application and tariff.

Understand what happens after you sign a contract for solar. **See page 8.**

Save copies of all the documents you sign. The information will be useful if you sell your home, need to replace your roof, or have any repair or maintenance issues.

STEP 8: Sign This Guide

Have you read at least the first 4 pages of this guide?

The first 4 pages of the California Solar Consumer Protection Program contain important information on false claims to watch out for and your rights.

It recommends that you take 48 hours to read and understand this entire guide before you sign.

****Do not feel pressured to read the complete document while the salesperson waits.
Ask them to come back at a later date to allow you time to read it.****

CUSTOMER

I read and initialed the first 4 pages of California's Solar Consumer Protection Guide. The Solar Provider gave me the time to read the entire 22-page guide.

I have not yet entered into a contract for solar with the Solar Provider signing below.

Customer Printed Name

Customer Signature

Date

SOLAR PROVIDER*

The customer initialed the first 4 pages of the guide.

The customer signed above before entering into a contract for the purchase, lease, power purchase agreement, or PACE financing of a solar system or solar energy with the company named below.

Company Representative Name/Title

Company Representative Signature

Date

Company Name

Company Email

Company Phone



City of Banning Electric Utility

Self-Generating Facility Application for Residential Photovoltaic Systems

Customer Information

Name (As it appears on the Utility Bill)

Installation Address of System	Banning, City	CA State	92220 Zip Code
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Phone Number	Customer Account Number (Required)	E-mail address (Required)
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Retailer/Seller (seller of solar photovoltaic equipment) Information

Name of Company	Address	Federal Tax ID No.
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Business Phone	Purchase Date	Seller e-mail address
----------------	---------------	-----------------------

Installer Information

Name of Company/Contractor	Address	Federal Tax ID No.
----------------------------	---------	--------------------

Business Phone	Contractor License Type & Number	Installer e-mail address
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Generating System Information

PV Module Manufacturer	PV Module Model #	Quantity
------------------------	-------------------	----------

STC Power rating per Module	Watts	Total Model Output	Watts
-----------------------------	-------	--------------------	-------

Projected Annual kWh Output	Watts	(Number of modules x STC rating per module)
-----------------------------	-------	---

Inverter Manufacturer	Inverter Model Number
-----------------------	-----------------------

System Rated Output	Watts (CEC A/C)	Number of Inverters
---------------------	-----------------	---------------------

Array Tilt (degrees)	Array Azimuth (degrees)	Mounting Method
----------------------	-------------------------	-----------------

Energy Storage Manufacturer	Model
-----------------------------	-------

Quantity	Power Rating per Module	Total Power Rating
----------	-------------------------	--------------------

The undersigned declare under penalty of perjury that the information provided and stated in this form is true and correct to the best of my knowledge, that the above-described self-generating system is intended primarily to offset part, or all of the electrical needs at the site of the installation, and the **required contributions in aid of construction of \$500.00 is paid at the time of submission**. I understand and agree that the choice of improvements, the selection of contractors, the purchase of items and acceptance of materials used and work performed, and the payments thereof, is my responsibility. I understand that the City of Banning does not endorse, recommend or make any representations as to specific brands, products, contractors or dealers; nor does it guarantee material or workmanship. I also agree to allow the City of Banning Public Utilities to access my premises for verification purposes.

Applicant (Customer) Signature	Date
--------------------------------	------

For office use only:

Check / Money Order #:	Project #:
------------------------	------------

Date received:	Date Approved:
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Signature (Public Benefits Coordinator)	Date
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City of Banning, Electric Utility, 176 E. Lincoln St., Banning, CA 92220 (951) 922-3260

City of Banning Electric Utility

Self-Generating Facility Calculation Worksheet for Residential Photovoltaic Systems

PV Module Information

Provide Complete information

1. PV Module Manufacturer _____
2. PV Module Model # _____
3. PV Module Quantity _____
4. PV STC Power Rating per Module _____
5. Total Module Output
(STC Rating x Quantity) _____
6. Projected Annual kWh Output _____

Inverter Information

Provide Complete information

1. Type of Inverter used Central Inverter Micro-Inverter
2. Inverter Manufacturer _____
3. Inverter Model # _____
4. Inverter Quantity _____
5. PV Module Quantity per Inverter _____
6. System Rated Output
(EPBB Calculation - CEC A/C Value) _____
7. Maximum Inverter Output Current _____

Inverter Output Conductors & PV Breaker Sizing

1. Maximum AC Output Current
(Inverter Quantity x Max Inverter Output Current x 125%) _____
2. Inverter Output OCPD Rating (PV back feed breaker)
*PV Back feed breaker must be rounded to next available size per Table 1 _____
3. Inverter Output Circuit Conductor size _____

Table 1. Minimum Inverter Output OCPD and Circuit Conductor Size									
Minimum OCPD (Breaker) Size	15	20	25	30	35	40	45	50	60
Minimum Conductor Size (AWG) at 90° C, Copper	14	12	10	10	8	8	6	6	6

Point of Interconnection

- *Only Load Side Connections are permitted
- *The PV Back feed breaker MUST be positioned furthest from the input feeder or Main Breaker location
- * The maximum combined PV back feed breaker and Main breaker cannot exceed 120% of the bus bar rating (Reference Table 2)

1. Current Main Service Panel Bus Rating _____ A
2. Current Main Service Panel Main Breaker Size _____ A
3. Will the Main Service Panel be Upgraded? Yes No
4. If Yes, have you completed the Main Service Panel Change Out/Upgrade Questionnaire? Yes No
5. Proposed New Electric Service Panel Bus Rating _____ A
6. Proposed New Electric Service Panel Main Breaker Size _____ A
7. If No, will the current main breaker be De-rated*? Yes No

***De-rating of the Main Breaker requires Electrical Load Calculations to be submitted for justification and MUST be approved by City of Banning Electric Utility. City of Banning Electric Utility MUST be scheduled to disconnect service for approved de-rating of the main breaker.**

Maximum Combined Supply OCPDs based on Bus Bar Rating									
Bus Bar Rating	100	125	125	200	200	200	225	225	225
Main Breaker Size*	100	100	125	150	175	200	175	200	225
Maximum allowable PV back feed breaker size combined with Main breaker at 120% of Bus Bar Rating	20	50	25	90	65	40	95	70	45

City of Banning Electric Utility - Residential Self Generating Facility Program Photovoltaic Systems

Program Description:

1. This program is designed to allow the interconnection and operation of a self-generating facility in parallel with the City of Banning Electric Utility's ("Electric Utility" or "Utility) electric grid. The intent of the generating facility is to offset the participant's annual electrical usage supplied by the Electric Utility at the address where electric service is provided.

***NOTE: Participant MUST be a City of Banning electric service customer**

2. A complete Photovoltaic (PV) system typically consists of one or more modules connected to an inverter that changes direct current (DC) to alternating current (AC) and is interconnected with the Electric Utility's electric grid at a dedicated circuit breaker located in the participant's electrical main service panel.

***NOTE: The Electric Utility reserves the right to inspect and verify all interconnected systems at any time**

3. This program requires PV modules meet the requirements of the Underwriters Laboratories (UL) Standard 1703 and PV inverter(s) meet the requirements of the Underwriters Laboratories (UL) Standard 1741. The PV system must use components that are listed on the California Energy Commission's list of "Eligible Equipment" as found on their website.
4. This program requires all PV systems to have a UL listed alternating current, full load break knife blade disconnect switch and/or switches with a lockable handle. The handle shall be capable of locking in the open position and the switch and/or switches must provide a "visible open". The disconnect switch MUST be located within ten feet (10') AND line of sight of the electrical main service panel. This requirement assures that no electricity can back feed into the electrical main service panel which could result in personal injury or damage to the equipment. The Electric Utility must be able to isolate the electric meter(s) to perform maintenance in a safe manner.
5. This program requires that the generating facility shall at all times comply with the applicable provisions of federal, state and local law including, without limitation, the City of Banning Municipal Code and City of Banning's Electric Rates, Rules and Regulations or successor provision as the same may be amended from time to time. The generating facility shall at all times conform to all applicable generating system safety and performance standards established by the National Electrical Code (NEC), the Institute of Electrical and Electronics Engineers (IEEE), and accredited testing laboratories such as Underwriters Laboratories, and applicable building codes.
6. This program requires that the Electric Utility shall not be obligated to accept or pay for and may, without any penalty to the Electric Utility, require the generating facility to interrupt or reduce deliveries of available energy (i) When necessary in order to construct, install, maintain, repair, replace, remove, investigate, or inspect any of its equipment or part of its system, or (ii) If it determines that curtailment, interruption, or reduction is necessary because of emergencies, forced or scheduled outages, force majeure, or compliance with prudent electrical practices.
7. This program requires that whenever reasonably possible and consistent with prudent electrical practices, the Electric Utility will give the participant reasonable notice of the possibility that interruption or reduction of deliveries may be required.
8. This program requires that if at any time the Electric Utility, in its sole discretion, determines that either (i) the Generating Facility, or its operation, may endanger Electric Utility personnel, or (ii) the continued operation of Generating Facility may endanger the integrity of the Electric Utility's electric grid, the Electric Utility may disconnect the Generating Facility from the Electric Utility's grid. The Generating Facility shall remain disconnected until such time as the Electric Utility determines that the condition(s) referenced in (i) or (ii) have been corrected to its satisfaction.

Program Description cont.:

9. This program requires that the Electric Utility may enter the participant's premises (a) to inspect, as the Electric Utility deems necessary, the protective devices and to read or test meters, and (b) to disconnect, without notice, the interconnection facilities if, in the Electric Utility's opinion, a hazardous condition exists and such immediate action is necessary to protect persons, or the Electric Utility's facilities, or property of others from damage or interference caused by the participant's generating facility, or lack of properly operating protective devices.
10. This program requires PV systems to be sized according to the Electric Utility "Sizing Your Photovoltaic System" and shall not exceed one hundred percent (100%) of the participant's annual electrical usage. Energy Storage Systems to be sized according to the PV system. Although the Electric Utility reserves the right to assign the final system size, the Electric Utility will make every effort to ensure sizing is mutually agreed upon while adhering to all requirements.

***NOTE: An addition to an existing system will require participants to submit a new application including the current system and proposed new system information.**

11. This program requires participants to receive approval from the Electric Utility and the City of Banning Building and Safety Department through an application, plan check, and inspection process before the generating facility can be interconnected and begin operation in parallel with the Electric Utility's electric grid.
12. This program will require participants to have a City owned Production Meter installed to monitor the PV system's production.

***NOTE: The cost of the Production Meter and/or any associated charge(s) (plan check, permit, installation, inspection, etc.) are the responsibility of the participant and/or the participant's contractor**

13. This program requires a contribution in aid of construction payment at the time of application submission in the amount of **Five Hundred Dollars (\$500.00)** for the following associated costs:
 - o \$245.00 the current cost of the Production Meter
 - o \$255.00 the current cost of reviewing, processing, approving the application, up to a total of three (3) plan checks, and up to three (3) inspections by the Utility.
 - Any additional plan check and/or inspection will result in an additional service charge of \$60.00 minimum per plan check/inspection.

***NOTE: The cost of the Production Meter is subject to refund under the following two (2) situations: A) the location currently has the appropriate meter installed from a previous PV project, or B) at the request of the participant in the event the project is cancelled and/or not installed within one (1) year of application approval. Refund request made outside of the one (1) year period, will not be processed.**

14. This program requires the Electric Utility to inspect and approve prior to receiving notice from the City of Banning Building and Safety Department of approval for the installed generating facility via email. Upon receiving the approval notice, the Electric Utility will schedule to set the production meter and activate the self-generating facility.

***NOTE: The Electric Utility will set the production meter and activate the self-generating facility within two (2) billing cycles, but not to exceed sixty (60) days, from the date the approval notice from the Building and Safety Department was received.**

Program Description cont.:

15. This program requires the City of Banning Public Benefits Department to receive notice via email from the Electric Utility once the production meter is set and the self-generating facility activated. Upon receiving the notice, the City of Banning Public Benefits Department will generate a notice of completion and/or a Permission to Operate ("PTO") Letter for the participant.

***NOTE: The City of Banning Public Benefits Department will generate and send a notice of completion and/or PTO Letter to the participant within two (2) weeks from the date the approval notice from the Electric Utility is received.**

16. This program requires the City of Banning to utilize the production meter to measure the kWh generated by the generating facility each billing cycle. To offset the participant's electrical usage, the City of Banning shall credit the participant's account one hundred percent of their generating facility's kWh returned to the utility at the current Distributed Self-Generation Production Rate.

17. This program may include generating facilities that may produce less than expected based on contractor installed equipment at participant's request. (i.e. monitoring system, etc.)

18. Any person who diverts utility services, prevents any utility meter from performing its measuring functions, tampers with property owned by the utility, or makes any connection or reconnection with property owned by the utility without authorization is in violation of California Penal Code, Section 498 resulting in a minimum **two hundred fifty dollars (\$250.00)** service charge with a maximum of **nine hundred seventy-five dollars (\$975.00)** per occurrence and may result in misdemeanor or felony charges up to and including imprisonment.

***NOTE: All charges MUST be paid PRIOR to any action being made by the Electric Utility (review, inspection, approval, service/system restore/activation, etc.)**

19. This program requires the participant to submit a completed application, including all required documentation, and sign in person at 176 E Lincoln St Banning, CA 92220 as acknowledgment of the program description, guidelines, and all related requirements.

***NOTE: Submission of signed application, including all required documentation, will initiate the application process with the Electric Utility.**

Program Guidelines:

A. ELECTRIC UTILITY APPLICATION PROCESS

1. City of Banning Electric Utility Self-Generating Facility Application for Photovoltaic Systems (“Application”) MUST be completed in full, including the Self-Generating Facility Calculation Worksheet for Photovoltaic Systems (“Worksheet”)

***NOTE: Customer account number AND a valid email address for the customer are required**

2. The following documents must be attached with the Application in order to submit for approval:
 - a. A copy of the contract, purchase agreement, and/or invoice between the customer and the contractor with the following information listed:
 - i. Contractor's name and address
 - ii. PV manufacturer's name, complete module number, and quantity
 - iii. Inverter manufacturer's names, complete module number, and quantity
 - iv. Total system capacity and/or total projected output
 - v. Total purchase price
 - b. Completed Worksheet

***NOTE: Main Service Panel Change Out/Upgrade Questionnaire MUST be included if the current electric service panel will be upgraded/changed out.**

3. Application MUST be signed in person by the City of Banning electric service customer at 176 E Lincoln St, Banning, CA 92220.
4. Submit all signed documents and payment of \$500.00 to the Electric Utility by Check or Money Order.
5. The Electric Utility will review the application, including all supporting documents to ensure all requirements are met and will notify the customer and/or contractor via email either:
 - a. An approval indicating that the Application has been approved by the Electric Utility and authorizing the customer and/or contractor to submit plans for Electric Utility plan check; or
 - b. An email requesting necessary revisions, corrections and/or documentation to meet Electric Utility requirements.

***NOTE: The Electric Utility makes every effort to manage projects in a timely manner, the application review process can take up to forty-five (45) days from the date a completed application, including all required supporting documents are received.**

Program Guidelines cont.:

B. ELECTRIC UTILITY PLAN CHECK PROCESS

1. In order to minimize installation problems, plans must be provided that show compliance with all applicable codes. Due to the inherent complexities and potential hazards associated with photovoltaic (PV) systems, a California Registered Electrical Engineer, a California Licensed Electrical (C-10), Solar (C-46), General Building (B), or General Engineering (A) Contractor is required to prepare and sign the plans.
2. Working clearances around existing and new electrical equipment will be maintained in accordance with NEC 110.26, Electric Utility Standard Drawings, and EUSERC Drawing 501 must be stated.
3. Line Side Taps into the busbar(s) or conductor(s) on the supply side (between the service entrance conductors and the main breaker) are NOT ALLOWED by the Electric Utility. All incoming current from the PV system must be back fed through a circuit breaker on the load side of the service main breaker.
4. All plans and specifications or reports must be legible. Minimum recommended font size is equal to or larger than #12 Times New Roman.
5. The sum of the ampere ratings of the main service breaker supplying power to the busbar from the Electric Utility and the ampere rating of the back-fed breaker supplying power to the busbar from the PV system shall not exceed one hundred twenty percent (120%) of the rating of the busbar or conductor.
6. Main Breaker may only be downsized (de-rated) when supporting electrical load calculations are provided to show that downsizing (de-rating) the main breaker will remain adequate for the loads at the main service panel.

***NOTE: Downsizing (de-rating) the main breaker MUST be scheduled with the Electric Utility to de-energize the main service panel.**

7. PV system back feed breaker shall be sized to carry not less than one hundred twenty-five percent (125%) of the maximum output current.
8. AC Disconnect and Production Meter Socket MUST be installed within 10' AND Line of Sight of the Main Service Panel.
9. Production Meter Socket MUST be installed within 48" to 75" to the center of the glass above grade level and must be wired per Electric Utility Standard Drawings.
10. Plans to be submitted to the Electric Utility for plan check upon application approval
 1. Residential requirements are: Four (4) sets of 11" x 17" plans

Program Guidelines cont.:

2. Plans submitted must contain the following:

a. Site Plan

- i. Provide fully dimensioned site plan showing property lines and all structures including fences/gates, gas meter, windows, etc.
- ii. Solar Panel layout
- iii. Location of Main Service Panel
- iv. Location of AC Disconnect(s)
- v. Location of Production Meter Socket
- vi. Location of Inverter(s)

b. Side Elevation

- i. All PV equipment and location
- ii. All grounded surfaces including fences/gates, gas meter, plumbing, etc.

c. Roof Plan

- i. Location of solar panels and any required walkways
- ii. Location of any roof mounted equipment (A/C units, vents, etc.)
- iii. Identify size and spacing of existing roof framing members and slope plus any required roof framing alterations needed.

d. Attachment Details

- i. Identify how solar panels will be secured to the roof.

e. Engineering Calculations

- i. Showing existing roof can support added weight of system.

Program Guidelines cont.:

- f. Electrical Diagram
 - i. Show Main Service Panel with Bus and Main Breaker ratings indicated
 - ii. Show Interconnection location and PV back feed breaker rating – Breaker to be located furthest from the Main Breaker as possible
 - iii. Show AC Disconnect(s)
 - iv. Show City Owned Production Meter Socket with listed ratings (minimum NEMA 3R and UL 414 listed)
 - v. Show Inverter(s) with complete manufacture, model information, and quantity
 - vi. Show conductor size and type and conduit size(s)
 - vii. Show ALL other electrical equipment
- g. Signage Specifications
 - i. Must meet requirements listed in National Electric Code (NEC) and the California Electrical Code (CEC) Articles 690 and 705
 - ii. Must meet requirements listed in the Electric Utility Standard Drawings
- h. Product Specifications and Literature
 - i. Provide specifications (cut-sheets) on electrical equipment to be installed including PV modules, inverter(s), disconnect(s), etc.

3. The Electric Utility will review the plans submitted to ensure all requirements are met and will notify the customer and/or contractor via email either:

- a. An approval indicating that the plans submitted have been approved by the Electric Utility and authorizing the customer and/or contractor to pick up and submit approved plans to City of Banning Building and Safety Department for plan check and permitting; or
- b. An email requesting necessary revisions, corrections and/or documentation to meet the Electric Utility requirements.

***NOTE 1: The Electric Utility makes every effort to manage projects in a timely manner, the plan check process can take up to forty-five (45) days from the date completed plans are received.**

***NOTE 2: A cost of sixty dollars (\$60.00) will apply to any additional Plan Check exceeding three (3) – One (1) initial and two (2) correction revision plan checks.**

Program Guidelines cont.:

C. ELECTRIC UTILITY INSPECTION PROCESS

1. Customer and/or Contractor MUST obtain Job Card / Permit BEFORE construction begins

***NOTE: Construction prior to obtaining job card / permit may result in additional charges**

2. Job Card / Permit MUST be onsite at the time of the inspection

3. Any person who diverts utility services, prevents any utility meter from performing its measuring functions, tampers with property owned by the utility, or makes any connection or reconnection with property owned by the utility without authorization is in violation of California Penal Code, Section 498 resulting in a minimum **two hundred fifty dollars (\$250.00)** service charge with a maximum of **nine hundred seventy-five dollars (\$975.00)** per occurrence and may result in misdemeanor or felony charges up to and including imprisonment.

***NOTE: All charges MUST be paid PRIOR to any action being made by the Electric Utility (review, inspection, approval, service/system restore/activation, etc.)**

1. The Electric Utility MUST be contacted **FIRST** for inspection at (951) 922-3260.

2. The Electric Utility will inspect the complete PV System with emphasis on the following:

- a. Confirming the quantity of PV modules and location are per approved plans
- b. Confirming Inverter size, model number, and location are per approved plans
- c. Inspecting lockable DC/AC Disconnect and appropriate placarding per approved plans and Electric Utility requirements
- d. Inspecting Directory Placard per approved plans and Electric Utility requirements
- e. Inspecting PV back feed breaker location, size and placarding per approved plans and Electric Utility requirements
- f. Inspecting Production Meter socket for any obstructions, location, continuity, and tightness of wire terminals.
- g. Confirming back feed voltage from PV breaker to Production Meter (Load Side) is 120V/240V.
- h. Confirming adequate spacing and clearance requirements are met.

3. Upon completion of the inspection, the Electric Utility will either:

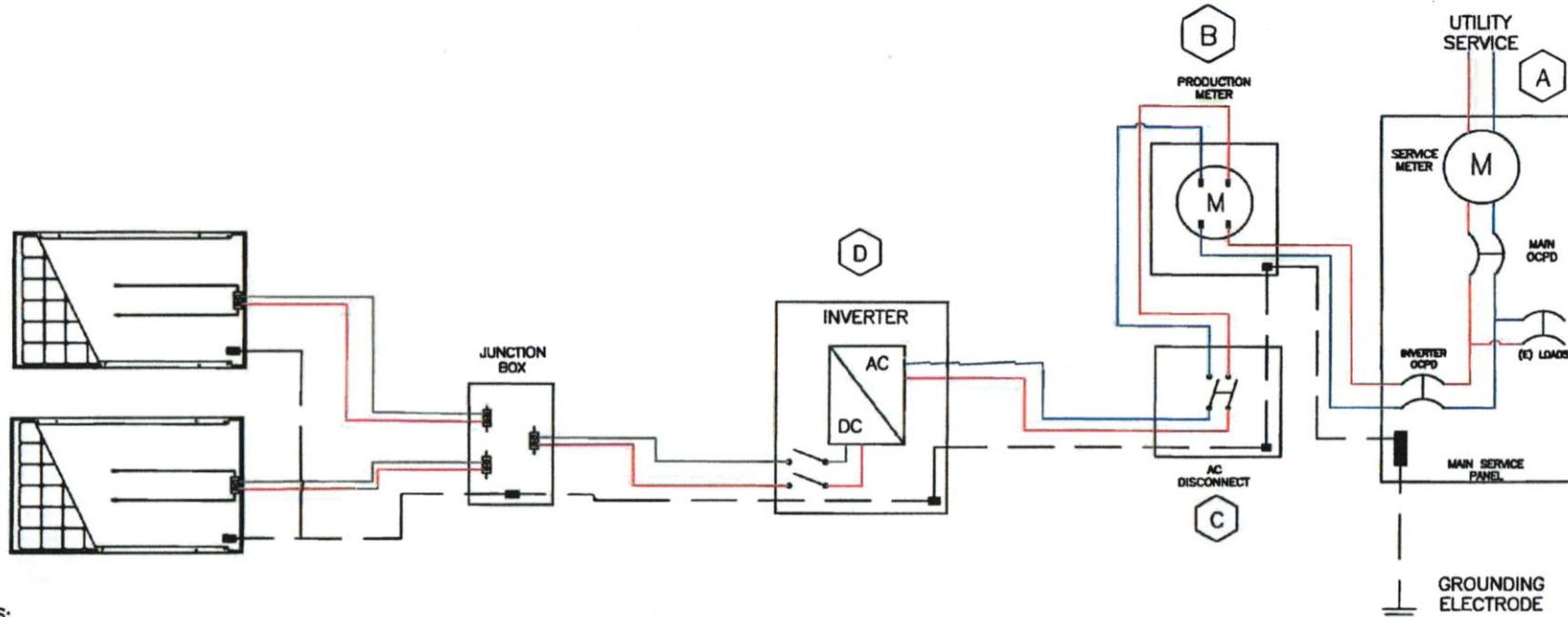
- a. Sign off on the Job Card / Permit and advise City of Banning Building and Safety that the PV system has passed the Electric Utility's inspection via email and the customer/contractor can schedule an inspection with Building and Safety; or,
- b. Send an email to the customer and/or contractor advising of the necessary corrections to meet the Electric Utility requirements.

Program Guidelines cont.:

D. ELECTRIC UTILITY INTERCONNECTION PROCESS

1. Once approved by the Electric Utility and then upon receiving email confirmation from City of Banning Building and Safety advising the PV system has passed inspection, the Electric Utility's Meter Test Technician (Meter Tech) will be notified to install the Production Meter
2. The Production Meter will be set, and the system will be activated within two (2) billing cycles, but not to exceed sixty (60) days, from the date the approval notice from the Building and Safety Department was received
3. Once the Production Meter has been installed, the Electric Utility's Meter Tech will notify the City of Banning Public Benefits Department (Public Benefits) that the meter has been installed and the system has been activated.
4. Upon receiving the notice, Public Benefits will generate a notice of completion and/or a Permission to Operate ("PTO") Letter and send to the customer and/or contractor within two (2) weeks from the date the notification from the Meter Tech is received.
5. The City of Banning will utilize the production meter to measure the kWh generated by the generating facility each billing cycle. To offset the participant's electrical usage, the City of Banning shall credit the participant's account one hundred (100%) of their generating facility's kWh produced at the current Distributed Self-Generation Production Rate.

Thank you for your interest in Solar Power!



NOTES:

- A. MAIN SERVICE PANEL MUST COMPLY WITH CEC LATEST REVISION AND OPERATE IN A SAFE MANNER.
1. C.O.B. ELECTRIC UTILITY WILL NOT ALLOW INTERCONNECTION WITH ANY UNSAFE CONDITIONS.
- B. PRODUCTION METER PROVIDED AND INSTALLED BY C.O.B. ELECTRIC UTILITY AT CUSTOMERS EXPENSE, METER SOCKET PROVIDED BY INSTALLER. C.O.B. ELECTRIC UTILITY WILL ACTIVATE THE PV SYSTEM AFTER IT MEETS ALL REQUIREMENTS, AND PASSES ALL INSPECTIONS.
1. CENTER OF METER MUST BE INSTALLED BETWEEN 4'0" AND 6'3" ABOVE FINAL GRADE.
- C. LOCKABLE KNIFE-BLADE UTILITY A.C. DISCONNECT TO BE LOCATED WITHIN 10' AND LINE OF SIGHT OF SERVICE PANEL AND MUST COMPLY WITH EUSERC DWG 501.
- D. INVERTER MUST COMPLY WITH UL1741 REQUIREMENTS. GROUNDING ELECTRODE SYSTEM MUST COMPLY WITH LATEST REVISION OF CEC ARTICLE 690.47.

1. SEPARATE D.C. DISCONNECT AT GRADE LEVEL REQUIRED ONLY IF INVERTER DOES NOT HAVE AN INTEGRATED D.C. DISCONNECT

NOTE. A LEASED SYSTEM MAY INCLUDE A SEPARATE METER PROVIDED AND INSTALLED BY THE LEASING COMPANY.

1. LEASED METER WILL NOT BE INSTALLED BETWEEN PRODUCTION METER AND MAIN SERVICE PANEL.
- ALL PV SYSTEMS MUST COMPLY WITH THE LATEST REVISION TO CEC ARTICLES 690 AND 705.
- ALL NECESSARY CLEARANCES SHALL COMPLY WITH CEC ARTICLE 110.26.
- ALL SIGNS OR DIRECTORIES SHALL BE ATTACHED TO THE ELECTRIC EQUIPMENT OR LOCATED ADJACENT TO THE IDENTIFIED EQUIPMENT (AS APPROVED BY THE AHJ).
- ALL SIGNS SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT.
- ALL SIGNS SHALL BE PERMANENTLY ATTACHED BY MEANS OF EPOXY OR EQUIVALENT SUITABLE FOR THE ENVIRONMENT (SCREWS OR RIVETS ARE NOT ALLOWED).
- ALL SIGNS SHALL BE EITHER METAL OR PLASTIC WITH ENGRAVED LETTERS, MACHINE PRINTED LETTERS, OR ELECTRO-PHOTO PLATING LETTERS IN RED WITH WHITE LETTERING.

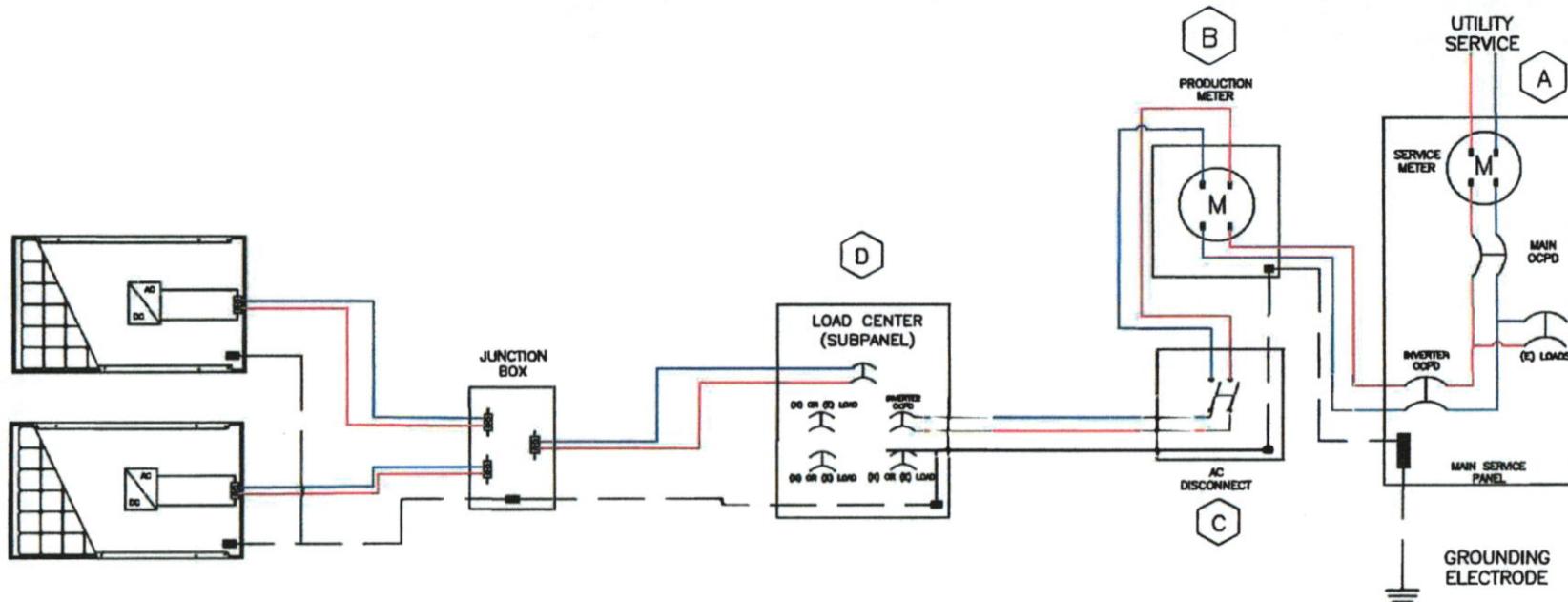


APPROVED: *Bob Tolosa* DATE: 9/19/19

PHOTOVOLTAIC SINGLE-PHASE SYSTEM DIAGRAM CENTRAL INVERTER (RESIDENTIAL)

SD

600-80.1



NOTES:

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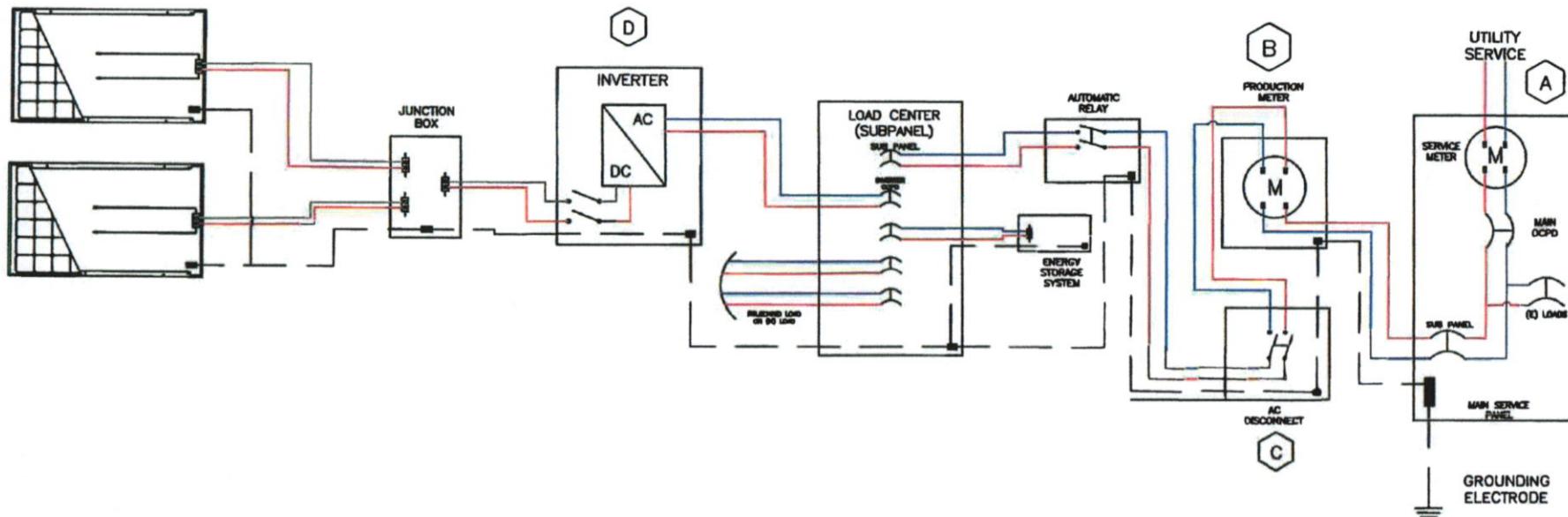


APPROVED: *Bob Reifel* DATE: 9/19/19

PHOTOVOLTAIC SINGLE-PHASE SYSTEM DIAGRAM MICRO INVERTER (RESIDENTIAL)

SD

600-80.2



NOTES:

- A. MAIN SERVICE PANEL MUST COMPLY WITH CEC LATEST REVISION AND MUST OPERATE IN A SAFE MANNER.
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- 1. CENTER OF METER MUST BE INSTALLED BETWEEN 4'0" AND 6'3" ABOVE FINAL GRADE.
- C. LOCKABLE KNIFE-BLADE UTILITY A.C. DISCONNECT TO BE LOCATED WITHIN 10' AND LINE OF SIGHT OF SERVICE PANEL AND MUST COMPLY WITH EUSERC DWG 501.
- D. INVERTER MUST COMPLY WITH UL1741 REQUIREMENTS. GROUNDING ELECTRODE SYSTEM MUST COMPLY WITH LATEST REVISION OF CEC ARTICLE 690.47.
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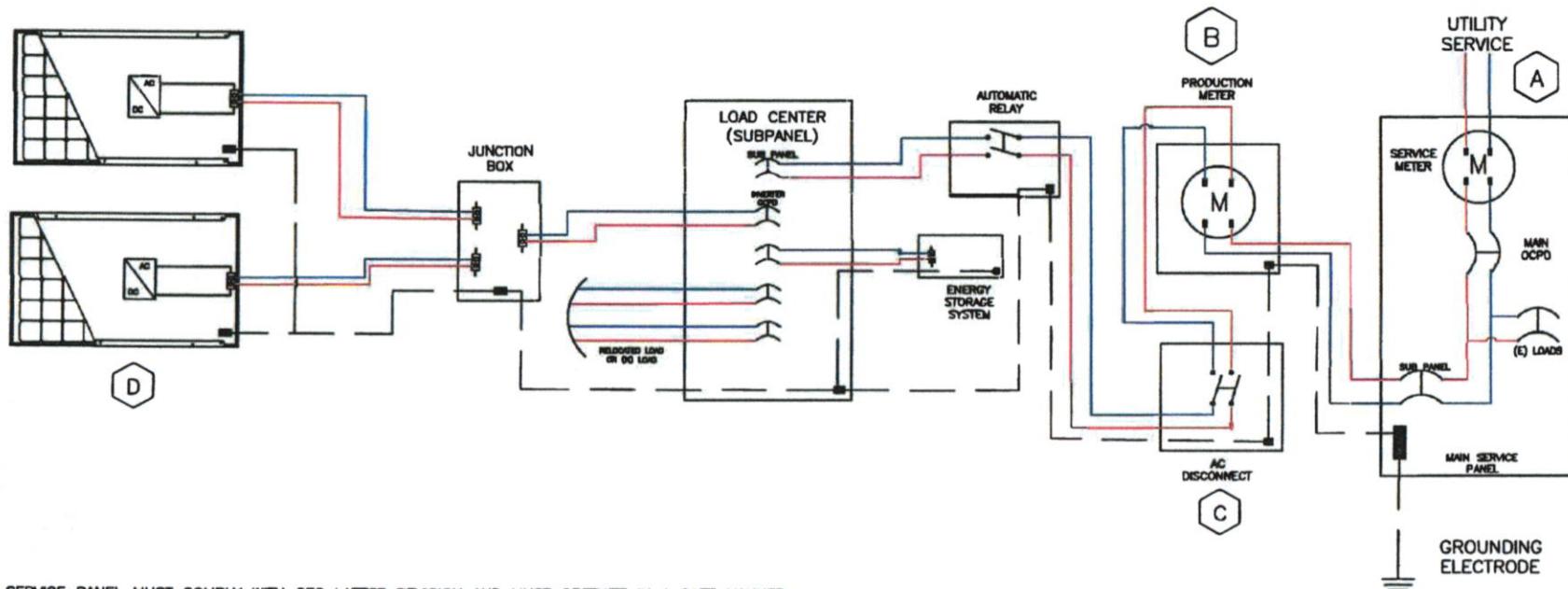


APPROVED: *Beth Reffin* DATE: 9/19/19

PHOTOVOLTAIC SINGLE-PHASE SYSTEM DIAGRAM ENERGY STORAGE (RESIDENTIAL)

SD

600-80.3



NOTES:

- A. MAIN SERVICE PANEL MUST COMPLY WITH CEC LATEST REVISION AND MUST OPERATE IN A SAFE MANNER.
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- B. PRODUCTION METER PROVIDED AND INSTALLED BY C.O.B. ELECTRIC UTILITY AT CUSTOMERS EXPENSE, METER SOCKET PROVIDED BY INSTALLER. C.O.B. ELECTRIC UTILITY WILL ACTIVATE THE PV SYSTEM AFTER IT MEETS ALL REQUIREMENTS, AND PASSES ALL INSPECTIONS.
1. CENTER OF METER MUST BE INSTALLED BETWEEN 4'0" AND 6'3" ABOVE FINAL GRADE.
- C. LOCKABLE KNIFE-BLADE UTILITY A.C. DISCONNECT TO BE LOCATED WITHIN 10' AND LINE OF SIGHT OF SERVICE PANEL AND MUST COMPLY WITH EUSERC DWG 501.
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- ALL SIGNS SHALL BE EITHER METAL OR PLASTIC WITH ENGRAVED LETTERS, MACHINE PRINTED LETTERS, OR ELECTRO-PHOTO PLATING LETTERS IN RED WITH WHITE LETTERING.



APPROVED: *Beth Kofis* DATE: 9/19/19

PHOTOVOLTAIC SINGLE-PHASE SYSTEM DIAGRAM ENERGY STORAGE (RESIDENTIAL)

SD

600-80.4

UTILITY INTERACTION POINT AC DISCONNECT

RATED AC OUTPUT CURRENT =

NOMINAL OPERATING AC VOLTAGE =

PV POWER SOURCE DC DISCONNECT

RATED MAXIMUM POWER-POINT CURRENT =

RATED MAXIMUM POWER-POINT VOLTAGE =

MAXIMUM SYSTEM VOLTAGE =

SHORT-CIRCUIT CURRENT =

NOTES:

- A. REQUIRED PLACARDS SHALL BE ATTACHED TO THE ELECTRIC EQUIPMENT WITHOUT COVERING MANUFACTURER LABELING OR LOCATED ADJACENT TO THE IDENTIFIED EQUIPMENT (PER AHJ APPROVAL)
 1. ALL PLACARDS SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT.
 2. ALL PLACARDS SHALL BE PERMANENTLY ATTACHED TO THE SURFACE OF THE ELECTRICAL EQUIPMENT BY MEANS OF EPOXY OR EQUIVALENT SUITABLE FOR THE ENVIRONMENT (SCREWS OR RIVETS ARE NOT ALLOWED)
 3. ALL PLACARDS SHALL BE EITHER METAL OR PLASTIC WITH ENGRAVED OR MACHINE PRINTED LETTERS OR ELECTRO-PHOTO PLATING IN RED WITH WHITE LETTERING.
 4. ALL PLACARDS SHALL NOT BE SMALLER THAN 2"X5" AND NO LARGER THAN 3"X6" (WITH THE EXCEPTION OF THE DIRECTORY PLACARD)
 5. ALL PLACARDS FONT STYLE SHALL BE ARIAL WITH THE FONT SIZE NO SMALLER THAN SIZE 12 OR NO LARGER THAN SIZE 28.
- B. EACH A.C. DISCONNECT SHALL HAVE ITS OWN PLACARD AND MUST COMPLY WITH NEC 690.15(A), CEC ARTICLES 690.13, 690.17, AND 690.54
- C. EACH D.C. DISCONNECT SHALL HAVE ITS OWN PLACARD AND MUST COMPLY WITH CEC ARTICLES 690.53, AND 690.7



REVISED: 03/22/2018

APPROVED: *Bob Tolis* 7/19/18

STANDARD DRAWINGS

PV DISCONNECT LABELS

SD

600-83

SERVICE PANEL COVER

DUAL POWER SUPPLY
PHOTOVOLTAIC SYSTEM

PLACE THIS LABEL ON THE
SERVICE PANEL COVER
ALONG WITH THE
DIRECTORY PLAQUE

DIRECTORY PLAQUE
(SEE C.O.B. STANDARD
DRAWING #600-85)

INSIDE SERVICE PANEL

MAIN BREAKER

SOLAR BREAKER

WARNING
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE
AND LOAD SIDES MAY BE
ENERGIZED IN THE OPEN POSITION.

PV BREAKER

MAIN BREAKER AND SOLAR BREAKER
SHALL BE IN THE FARTHEST POSITION
FROM EACH OTHER IN SERVICE PANEL

WARNING LABEL SHALL BE NEXT TO
OR JUST BELOW SOLAR BREAKER

PV BREAKER LABEL SHALL BE NEXT
TO OR JUST BELOW SOLAR BREAKER

NOTES:

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 1. ALL PLACARDS SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT.
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 4. ALL PLACARDS SHALL NOT BE SMALLER THAN 2"X5" AND NO LARGER THAN 3"X6" (WITH THE EXCEPTION OF THE DIRECTORY PLACARD)
 5. ALL PLACARDS FONT STYLE SHALL BE ARIAL WITH THE FONT SIZE NO SMALLER THAN SIZE 12 OR NO LARGER THAN SIZE 28.



REVISED: 03/22/2018

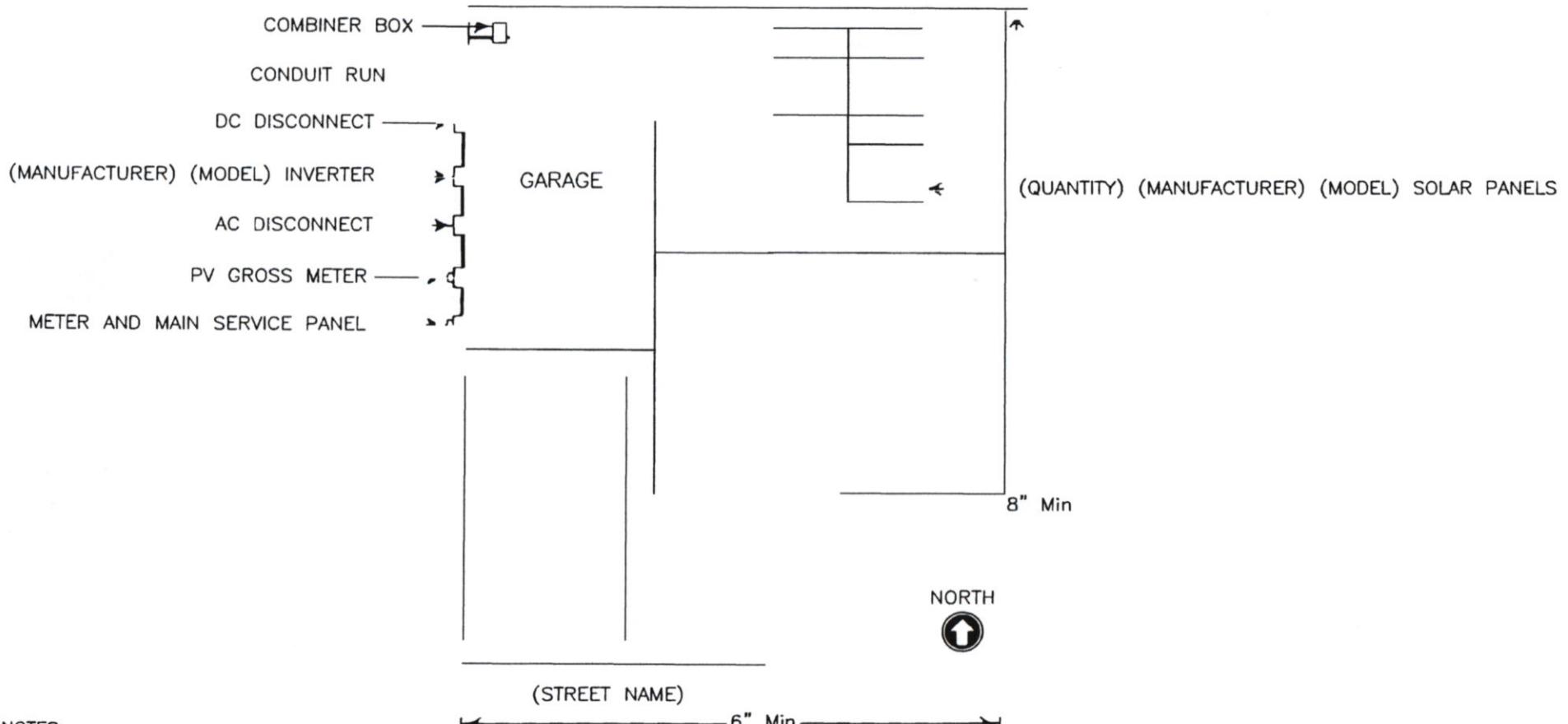
APPROVED: *Bud Teflis 7/19/18*

STANDARD DRAWINGS

PV SERVICE PANEL WARNING LABELS

SD

600-84



NOTES:

1. LABELS LISTED ABOVE WITH PARENTHESSES INDICATE THAT THE SPECIFIC NAME MUST BE INSERTED IN PLACE OF THOSE GENERAL TERMS.
2. DIRECTORY PLACARD MUST BE PLACED ON THE CUSTOMER SIDE OF THE SERVICE PANEL IN CLEAR VIEW WITHOUT COVERING MANUFACTURER LABELING.
3. DIRECTORY PLACARD MUST BE UNIQUE TO EACH HOUSE IT REPRESENTS (I.E. ROOF LAYOUT, EQUIPMENT LOCATION, ETC.)
4. DIRECTORY PLACARD MUST BE A MINIMUM SIZE OF 6" x 8".
5. FONT STYLE SHALL BE ARIAL AND FONT SIZE SHALL NOT BE SMALLER THAN SIZE 12 AND NO LARGER THAN SIZE 28.
6. PLACARD SHALL BE RED WITH WHITE LETTERING.
7. PLACARDS SHOULD BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT, PERMANENTLY ATTACHED TO SURFACE OF ELECTRICAL EQUIPMENT BY MEANS OF EPOXY OR EQUIVALENT SUITABLE FOR THE ENVIRONMENT (SCREWS OR RIVETS ARE NOT ALLOWED), AND SHALL BE EITHER METAL OR PLASTIC WITH ENGRAVED OR MACHINE PRINTED LETTERS.



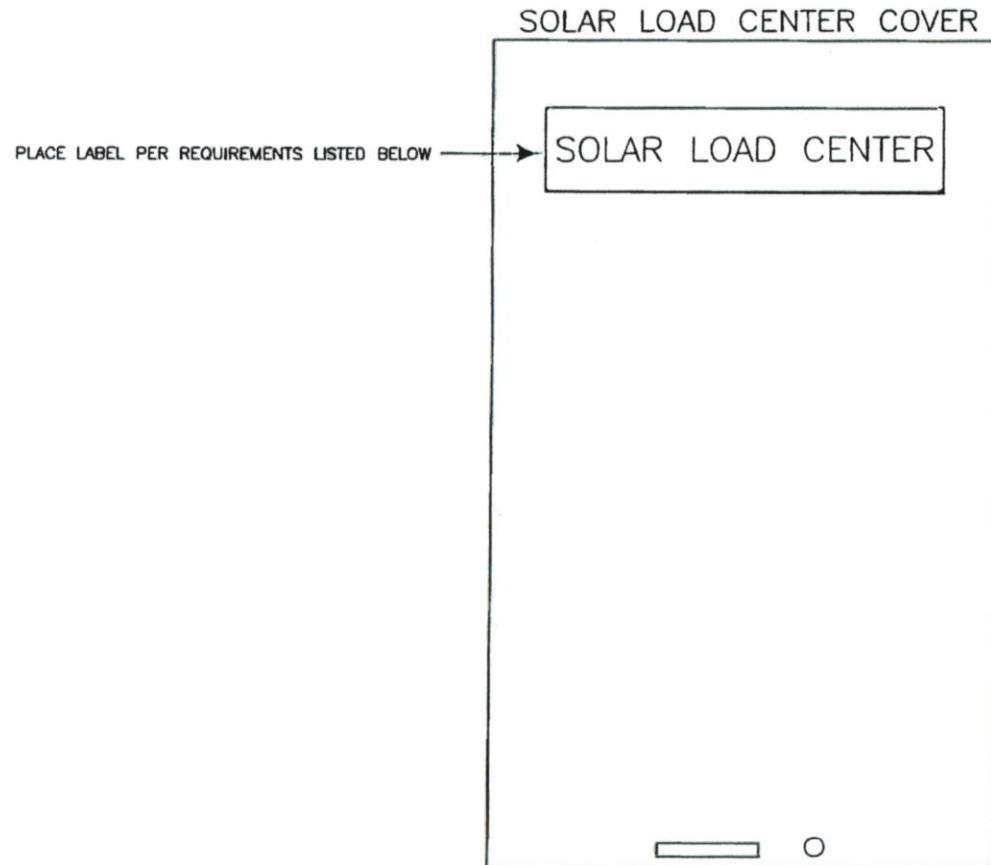
REVISED: 03/22/2018

APPROVED: Bob Tolis 7/19/18 STANDARD DRAWINGS

PV DIRECTORY PLAQUE

SD

600-85



NOTES:

1. SOLAR LOAD CENTER LABEL SHOULD BE LOCATED CENTRALLY ON THE TOP HALF OF THE PANEL'S FRONT COVER.
2. PLACARD SHALL BE PLACED IN CLEAR VIEW ON ELECTRICAL EQUIPMENT WITHOUT COVERING MANUFACTURER LABELING.
3. FONT STYLE SHALL BE ARIAL AND FONT SIZE SHALL NOT BE SMALLER THAN SIZE 12 AND NO LARGER THAN SIZE 28.
4. PLACARD SHALL BE RED WITH WHITE LETTERING.
5. PLACARDS SHOULD BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT. ALL PLACARDS SHALL BE PERMANENTLY ATTACHED TO SURFACE OF ELECTRICAL EQUIPMENT BY MEANS OF EPOXY OR EQUIVALENT SUITABLE FOR THE ENVIRONMENT (SCREWS OR RIVETS ARE NOT ALLOWED). OUTDOOR SIGNS SHALL BE EITHER METAL OR PLASTIC WITH ENGRAVED OR MACHINE PRINTED LETTERS.



REVISED: 03/22/2018

APPROVED: *Beth Kofler*
7/19/18

STANDARD DRAWINGS

SOLAR LOAD CENTER LABEL

SD

600-86



Sizing Your Photovoltaic System

Senate Bill 1 allows a utility customer to offset up to 100% of their historical load with a photovoltaic (PV) system. In order to verify that a proposed PV system is sized properly to comply with this legislation, the following rules will be used by the City of Banning Electric Utility:

1. In order to install a PV system that will offset up to 100% of the customer's annual usage, the customer must have 12 months of electric usage history at the location where the proposed PV system is to be installed.
2. If the customer does not have 12 months of historical usage but does have usage history that includes at least one full summer month (June through September) and at least one full winter month (October through May), then the Electric Utility will use this data to estimate the missing months. Any missing summer months will be estimated at the lowest value of the full summer months that are available. Any other missing months will be estimated at the lowest value of the full winter months that are available.
3. If the customer does not meet the historical usage requirements described above, and the customer does not want to wait to acquire this usage history, the customer will be permitted to install a PV system that is sized up to 2.8 kilowatts (kW), based on Climate Zone 10.
4. In order for a customer to modify and/or increase the size of a PV system that has been previously approved and/or installed, the customer must have 12 months of electric usage history with the current size system at the location where the proposed PV system size will be modified and/or increased.