



# UCAN

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## **UCAN's PERSONAL PV BUSTER**

### **A Residential Buyer's Guide for Photovoltaic Solar Energy**

**Is now the time to generate your own electricity  
using the Sun as your power source?**

UCAN thinks it is worth a very serious look by any homeowner who uses more than 400 kwhrs per month of electricity. Why? Let us count the ways:

1. **It's a smart "home remodel" investment . . .** and perhaps the only home improvement that pays you back monthly as well as in the long run.
2. **It's good for the environment** – helps reduce air emissions and other forms of pollution.
3. **It helps build regional energy independence** by reducing San Diego's growing dependence on dirty imported electricity (remember ENRON?) It also reduces the need to build costly new infrastructure (think: \$1.5 billion for the ill-conceived Sunrise Powerlink).
4. **It provides reliable energy** to your home for more than 30 years (and possibly up to 50 years) without worry of electricity price increases.

**But . . .**

How do you determine whether Photovoltaic (PV) Power is right for you?  
How do you find the installer who will offer you a high quality system and the best price?  
What key questions do you need to ask?  
How do you compare proposed systems and their costs?



Michael Shames is generating clean electricity from his rooftop with photovoltaic solar panels.

5. **It's government subsidized:** Current State Rebates and Federal Tax Credits will offset a good portion of the cost for the next few years.
6. **It increases the value of your home** without an increase in property taxes.
7. **You will pay less to SDG&E.** Say goodbye to writing those big monthly checks to SDG&E.
8. **You'll be a hero** to your friends and neighbors (and perhaps even your family?) because you are now part of the solution!
9. **Oh, and did we say it was good for the environment?**

**Follow these five steps and you'll be well along the way to finding the right PV system at the best price. You can find even more useful info and a humorous video detailing Michael Shames' purchase of a PV system at the UCAN website – [www.ucan.org](http://www.ucan.org). But read this guide first!**

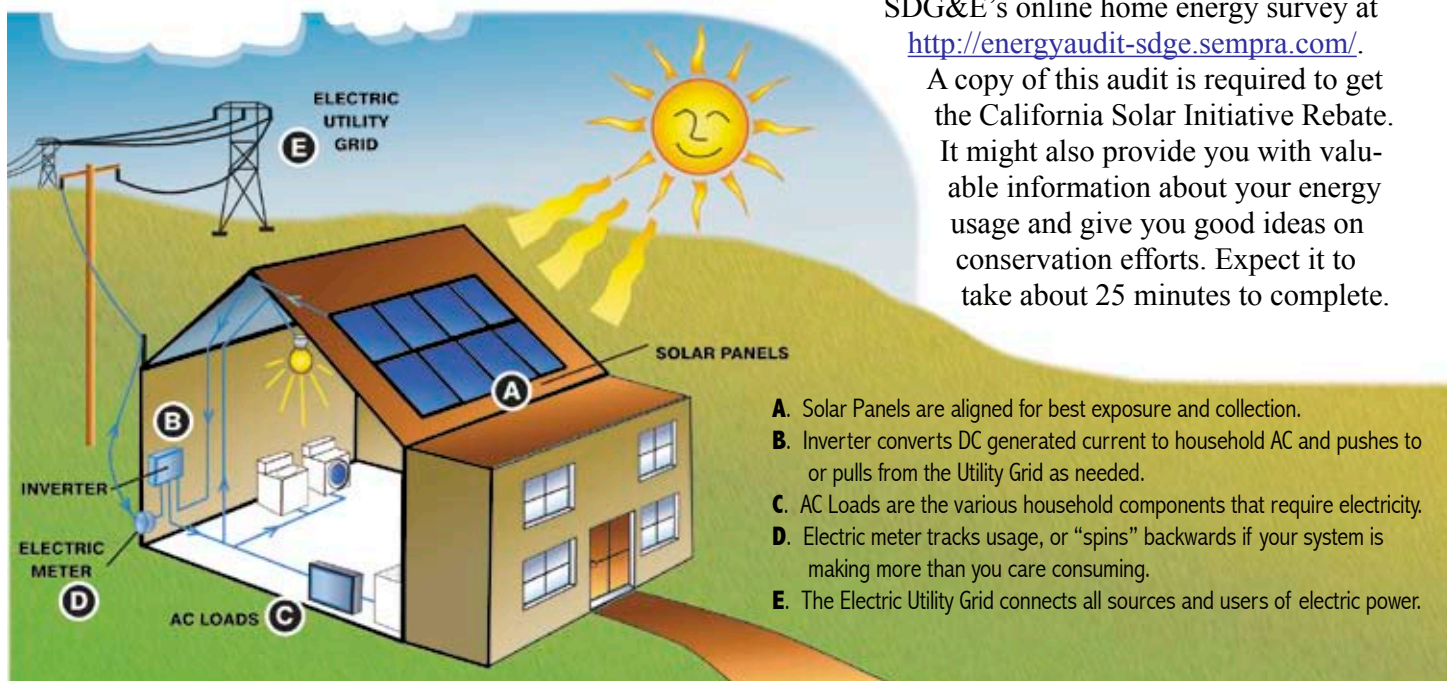
## STEP 1: IT IS NOT AS COMPLEX AS IT SEEMS

To determine what type and size of system is best for your home, you need to gather a little information in five areas.

- **Your Motivation:** What do you want from this investment? Is payback critical? Are you more interested in helping the environment? If saving money is your biggest motivator, you may size a system just to cover the more expensive upper tiers of electricity. If your intention is more “green” than greenbacks, then you may opt for 100% of your load covered by PV. Most customers pick something in between.
- **Your Anticipated Needs:** It helps to review your electric bills for the last year (or retrieve them on line at <https://myaccount.sdge.com>.) Look at your past usage and ballpark your future 10 years of usage. Are you planning anything that will significantly change your electricity usage i.e. adding a pool or A/C, or perhaps a plug-in hybrid car?

- **Your Roof:** . A typical home will need 300 – 500 square feet of roof space for the solar panels. A south-facing roof is best, but east or west facing (and anything in between) will also work. An installer will need to know the type of roof to select the appropriate railing system. What is the type and condition of your roof? You really want to make sure the roof under the solar panels is in good shape.
- **Your Insolation:** This is a fancy word describing any shading of your roof – a tree, a telephone pole, a chimney, or your neighbor's house can reduce insolation. If so, make sure the installer does a shading analysis before you sign a contract.
- **Your Amps:** You need to determine your service size from your service panel (breaker box). This will be something like 100amps or 125 amps. New homes could be up to 200amps. This will impact the size of PV system you can install.

- **Extra Credit:** You might be helped by SDG&E's online home energy survey at <http://energyaudit-sdge.sempra.com/>. A copy of this audit is required to get the California Solar Initiative Rebate. It might also provide you with valuable information about your energy usage and give you good ideas on conservation efforts. Expect it to take about 25 minutes to complete.



- A. Solar Panels are aligned for best exposure and collection.
- B. Inverter converts DC generated current to household AC and pushes to or pulls from the Utility Grid as needed.
- C. AC Loads are the various household components that require electricity.
- D. Electric meter tracks usage, or “spins” backwards if your system is making more than you care consuming.
- E. The Electric Utility Grid connects all sources and users of electric power.

## STEP 2: PLAYING THE FIELD

While the majority of the cost in a PV system is the hardware, finding the right installer is a very important factor. Like any home remodel, the contractor can make the experience delightful or regretful. And like any remodel, you'll want to get at least three estimates. Depending on which installers you call you might get the exact same system and pay thousands more. So what do you do? Well, UCAN can help.

- **First go to the UCAN** website and check out the companies that engaged in our open bidding process. We've screened them . . . they're all competent installers with good reputations. You can get more names of installers at <http://www.sdenergy.org>
- **Next, check out the installer web sites.** Get a feel for their company and check out any references and case studies. Record their contractor numbers.
- **Call at least 3 installers.** Tell them that you got their names from UCAN. They'll know you are serious and understand the process. Arrange for them to come out for a site visit.
- **They'll want the information you gathered in Step 1.** Based on this information they should be able to provide preliminary proposals during the site visit.

## STEP 3: LIVE AND IN-PERSON

A competent installer will come to your home and check out the installation. This is called a "site visit." It is your chance to get all your questions answered and tell the installer exactly what you want. On the other side of things, they are there to sell you something . . . so be prepared. You'll want to use this visit to review any preliminary proposals, conduct a financial analysis on the cost benefits of going solar and get a feel for the companies.

### What the Installer Should Do

- They should go to the roof and take measurements of the available roof space and the locations of any protrusions such as vent pipes.
- If there is any question on shading, the installer should conduct a shading analysis.
- Check your service panel.
- Determine the desired location for the inverter. This is usually in the garage or near the service panel.
- Explain in detail the solar panel installation. Provide pictures of similar installations. You want this to look good.
- Go over the California Solar Initiative Rebate. Some installers will ask you to pay the full system price and you will receive the rebate check. Other installers will deduct the rebate amount

from what they charge, and then they will receive the rebate check.

### What You Should Do

- Download the UCAN's PV Buster Worksheet from the UCAN Website.
- Show it to the installer and have them follow the UCAN worksheet.
- Get a process outline with the steps and dates for paperwork, delivery of products, installations and inspections.
- **DO NOT** put any money down until you actually sign a contract.

## STEP 4: TAKING THE PLUNGE

In the end, you will make a decision on which system and installer to use based on a few basic factors:

- **How much electricity the system produces.**
- **The net cost of the system.**
- **The system that looks best on your house.**
- **Confidence in the installer.**

By carefully filling out UCAN's Proposal Comparison Sheet (also at [www.ucan.org](http://www.ucan.org)), you should get a clear comparison of how much electricity the system will produce and the net cost. Make sure that the data for the CSI Rebate, the CEC-AC Rating, and the PV Annual kWh are from the CSI-EPBB calculator. If the installer has not provided the CSI-EPBB printout, you can get it yourself at <http://www.csi-epbb.com/>. By carefully discussing the installation process, going over the layout schematic, and looking at photos, you should have a good idea of how the system will look on your house. By going through this process you should get a good feel for your level of trust and confidence in each installer.

**Extra Credit:** Go to California Contractor State Licensing Board web site, <http://www.cslb.ca.gov/>. In the left side menu select "Check a License or HIS Registration." In the next screen, type in the installer's contract number and see if there are any complaints.

## STEP 5: FINAL DETAILS

The last step before giving the go ahead and making a down payment is to carefully go over the Installer Contract, Equipment and Labor Warranties, the warranty against roof leaks, payment terms, the CSI rebate paperwork, the SDG&E interconnect paperwork, and the installation schedule. Most of this will be the same for all the installers, but make sure you understand it fully.

Remember, when you sign the contract for the PV installation, you won't pay a penny more than \$1,000. That's the law. You don't owe another dime until the installers have concluded the installation.

Review and sign the contract. Give 'em the \$1,000 check. (not a penny more for the first payment) Enjoy your new personal, non-polluting, inflation-resistant, high-tech, silent electricity generator. Then tell your friends how you busted the PV puzzle and got the best PV system at the best price.

