

Solar Buyers Guide

Information to help you make an informed solar purchase



Cinnamon
Energy Systems

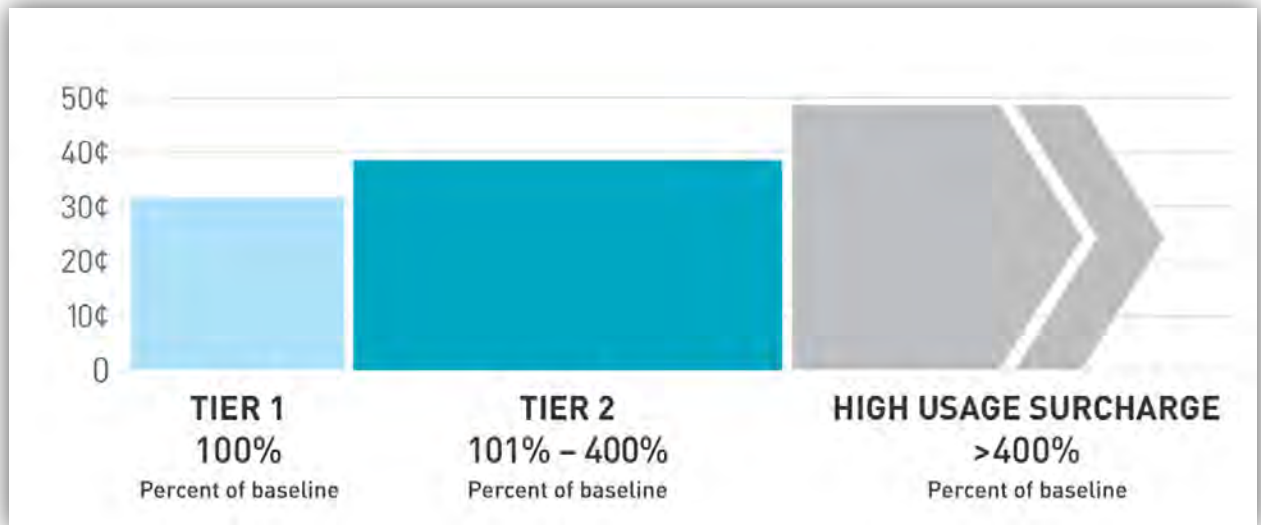


A Homeowners Guide to Going Solar

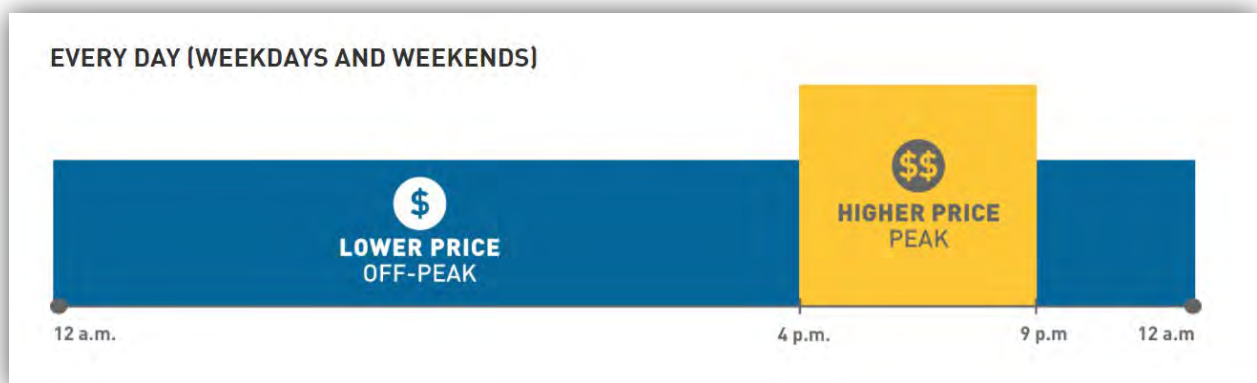
1) SOLAR ECONOMICS

a) Cost of Electricity

- PG&E has typically used a tiered rate structure – The more you use – the more you pay.

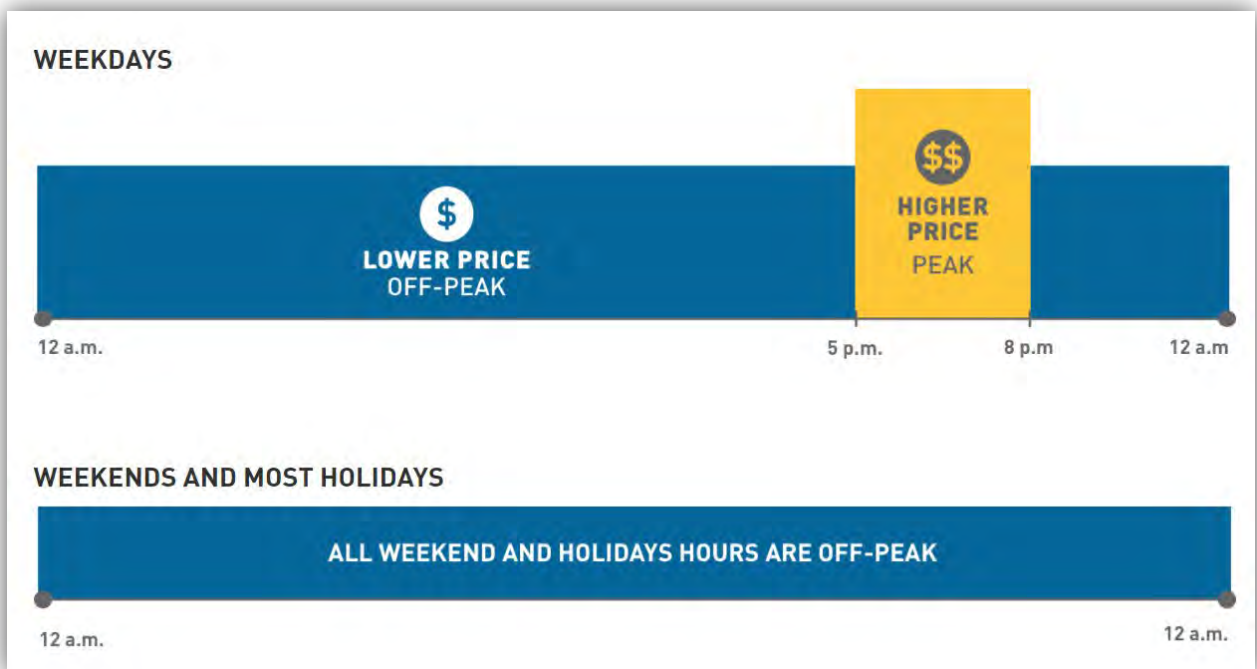


- PG&E has been moving users to a *Time of Use* model.
 - Time-of-Use (PEAK PRICING 4 - 9 P.M. EVERY DAY) E-TOU-C

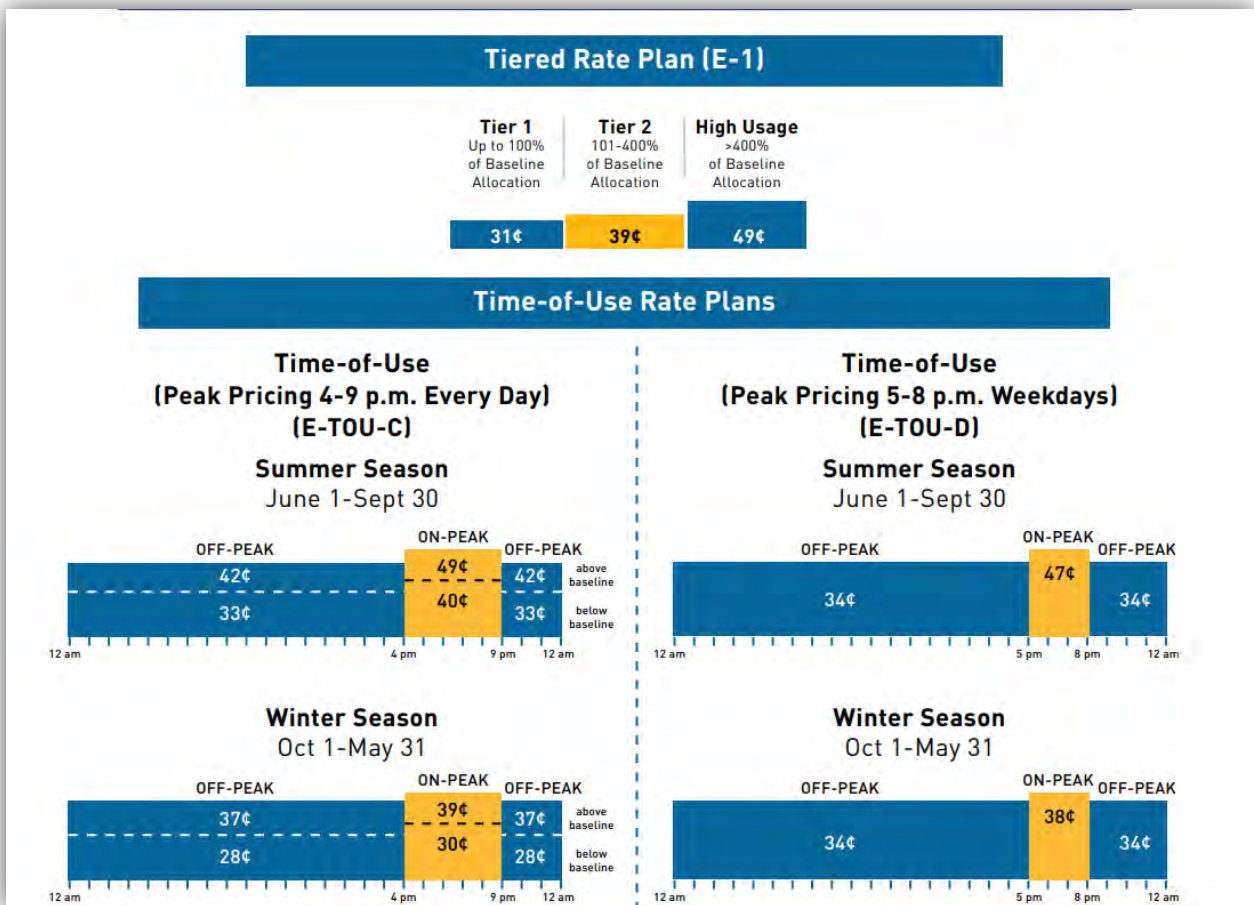


- The price you pay changes based on the time of day
 - Peak (higher price) – 4 p.m. to 9 p.m. every day
 - Off-Peak (lower price) – before 4 p.m. and after 9 p.m. every day
 - Time-of-Use (PEAK PRICING 5 - 8 P.M. WEEKDAYS) E-TOU-D

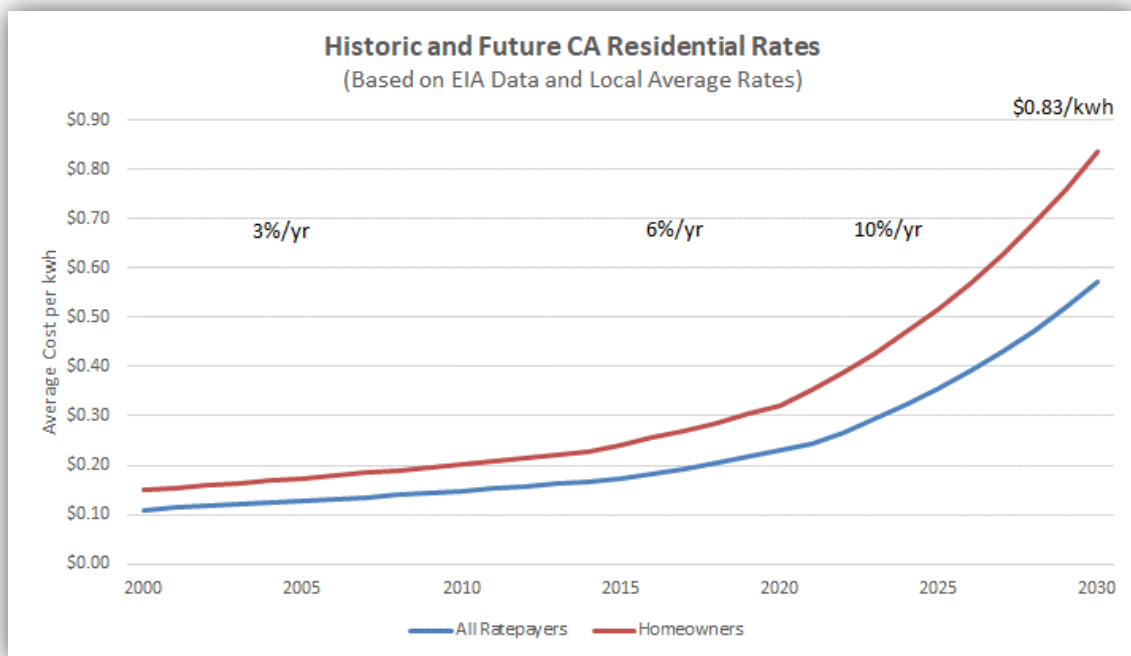
- This rate plan offers lower prices during periods of the day when energy costs are lower—before 5 p.m. and after 8 p.m. on weekdays and during all hours on weekends and most holidays.
- The price you pay changes based on the time of day, the day of the week, and the season:
 - Peak (highest price) – 5 p.m. to 8 p.m. Monday through Friday (except most holidays)
 - Off-Peak (lowest price) – before 5 p.m. to 8 p.m. Monday through Friday and all hours on weekends and most holidays
 - Eight months (October through May) have lower prices than the four months of summer (June through September).
 - Unlike the Time-of-Use Rate Plan 4-9 p.m., there is no Baseline Allowance on this rate plan.



- California’s electricity rates are among the highest in the nation and rates continue to go up over time.
- In 2022, PG&E raised rates by 9% in January, then again raised rates by 9% in March resulting in a 18% rate increase in the first 10 months of the year.
- Rates for those plans (effective March 1, 2022) run from \$0.30 - \$0.49 per kw



- As a result, it is estimated that the cost of electricity by 2030 will be in the ~ \$0.83/kwh range.



b) *Am I a Good Candidate for Solar?*

- Do you own your home?
- Is your average monthly electric bill \$100 or more?
- Does your roof have minimal shade?

If you answered yes to all 3 of the above questions, adding solar to your home makes good sense.

c) *How Much Does a Solar System Cost?*

- The more solar panels you get, the more it costs. If you have enough roof space, a good solar installer will size a system for you that will meet your entire electrical usage. Alternatively, you can easily install a smaller system now and add panels later. A twelve panel system will cost as little as \$7,000 after the Federal Tax Credit.

d) *How Much Will I Save with Solar?*

- The more solar panels you get, the more you will save. Your monthly savings are based on your electric rate, which for most people in Silicon Valley is currently \$0.49/kwh in the top rate tier. At this rate, each panel will generate about \$190 of electricity per year; for twelve panels you will save about \$2,280 per year.

e) *What Tax Credits and Rebates Can I Get?*

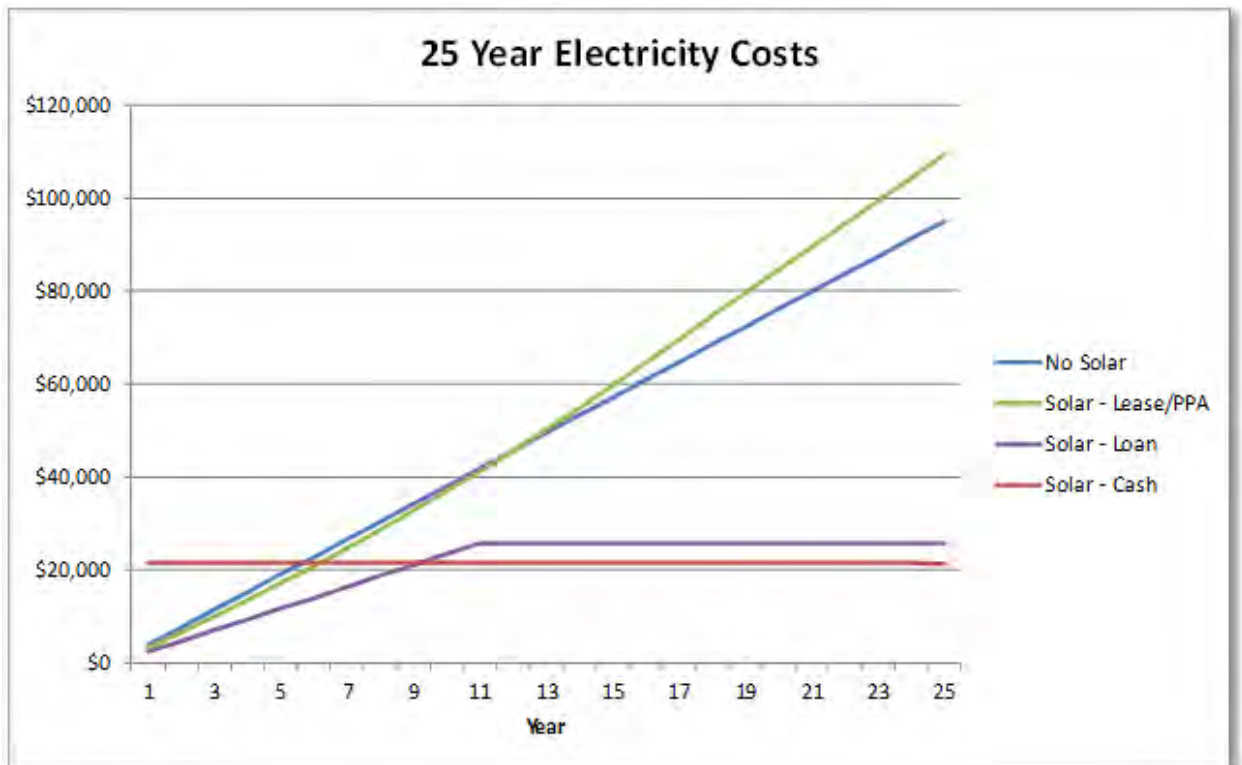
- There is a 26% Investment Tax Credit (ITC) that you will get on your system. Basically, if your total costs are \$10,000 you get to reduce your annual tax bill (one time) by \$2,600. There is a simple one page form that your accountant will fill out.
- Basically, every homeowner who installs a solar electric system and/or solar storage gets a 26% tax credit on the total cost of their system. This tax credit only applies to the owner of the system, not if you have a solar lease or solar PPA. There is no need to file for the ITC if you have a lease or PPA since the corporate entity that owns your system has already collected the tax credit and depreciation benefits – reducing your monthly payments accordingly.

2) FINANCE OPTIONS

a) *Should I Lease, Borrow or Pay Cash?*

- Over the past few years, rooftop solar equipment has become standardized and much more affordable. Since there are no moving parts, rooftop solar systems provide clean, reliable, maintenance-free electricity for 25+ years with negligible maintenance. Although leased systems were very popular when systems were expensive, now that system prices are so low many homeowners realize that their overall economics are much better if they purchase the system outright. With a cash or bank loan purchase, after a four to eight year payback period, customers

enjoy the full benefits of free electricity – and are not obligated to continue lease payments for 15+ years.



The simple graph above shows your cumulative costs for electricity in four scenarios: no solar, leased/Power Purchase Agreement (PPA), Bank Loan, or cash solar purchase. Although the leasing option saves you a little bit of net cash in the first few years, it is very clear that the cash purchase saves much more money over the medium and long term. In this example, the total electricity costs over 25 years are over \$90,000; with a leased system the total costs are nearly \$100,000; and with a cash purchase the total costs are \$22,000. Basically, with today's low solar prices, leasing is a bad deal. Cinnamon Energy Systems offers a **No-Money-Down** finance option so if a cash purchase is not in your plans, be sure to ask us about financing.

b) What are the Best Financing Options?

- If you ask your accountant, he or she will probably tell you the best financing option is to pay with cash. For example, with a six-year payback, your ROI is 15%. In this example, over the 25-year life of your system on a cash purchase, your 25-year solar electricity costs are \$0.10 kwh. With a lease or PPA option, over 25 years your costs will be about \$100,000 for your lease and electricity payments. Basically, after ten years you are way better off by paying cash for your

system and if you don't plan on staying in your house for 15 years you should definitely not lease a system since your termination costs will be the full residual value of the system.

3) SELECTING A SOLAR INSTALLATION COMPANY

a) *What Should I Consider When Selecting a Solar Installation Company?*

Consider

- **Years in business** – Are they established, experienced and have deep knowledge of the business, industry and technologies.
- **Certified, licensed, insured** – Make sure the installer is a certified member of the North American Board of Certified Energy Practitioners (NABCEP); carries a valid contractor license (C46 – Solar, or C10 Electrical); and carries adequate insurance.
- **References, reviews & reputation** – Anytime you hire a contractor, research reviews on Yelp and Nextdoor, and always ask for references that you can call to discuss the experience.
- **Products that look best on your home** – If aesthetics of your home is important, always find out what the product will look like before you sign a contract. Large racking structures used to mount panels on your roof and shiny metallic panel frames may detract from your home's appeal.
- **Workmanship & product warranties** – Ask for product and workmanship warranties before you sign.
- **System Production Guarantees** – Make sure the company you choose guarantees their output of your system. Some may overstate production to make it seem like you are getting a better price when in fact your system may underperform to their estimate. A reputable installation company will guarantee your output in the contract.
- **Experience with permitting from your jurisdiction** – Contractors that may not be local to your community probably have little experience with the nuances of permitting and getting approvals from within your local jurisdiction. This can cause costly delays so always ensure the contractor has significant experience in your area.

Avoid

- **Selecting on price alone** – As with any home improvement project, selecting a contractor on price alone is not a best strategy.
- **Hard sell tactics** – Unfortunately, the solar business has become very competitive and not all companies are focused on delivering a solution that meets your needs. Best to find a company that will take the time to learn about your objectives, take the time to explain options and work with you to ensure the best results for your needs.

- **Companies using sub-contractors** – Some solar companies will sell you a system, then find a sub-contractor to install the solution. Always best to ensure the installation company you are working with is directly responsible for the work they do, does not use sub-contractors and will be around to service the system and honor warranties should you need them.
- **Bids that do not specify products to be installed** – Some installation companies will specify a total system size but not provide specific details on the products (panels, inverters, etc.) that will be installed. They do so to allow themselves maximum flexibility in delivering a generic solution with whatever products are in their inventory at the time the installation commences. Solar installation bids should absolutely specify the products that will be installed.
- **New installation companies** – With the increase in demand for solar, many new companies have started selling and installing solar. Always best to choose an established company that has significant experience to ensure they will provide you with the best solution, deliver a flawless installation, and be in business after your initial purchase.
- **Non-Local Companies** – In the solar industry, larger is not better. Large companies operating across large geographical regions or states have redundant costs that increase their operating costs which they typically pass onto their customers. Often non-local companies will operate in a specific market for a while then pull out when they realize they cannot compete with the established local companies. Should your system require warranty work for equipment or workmanship it may prove challenging to attain if the company is no longer servicing your geography.

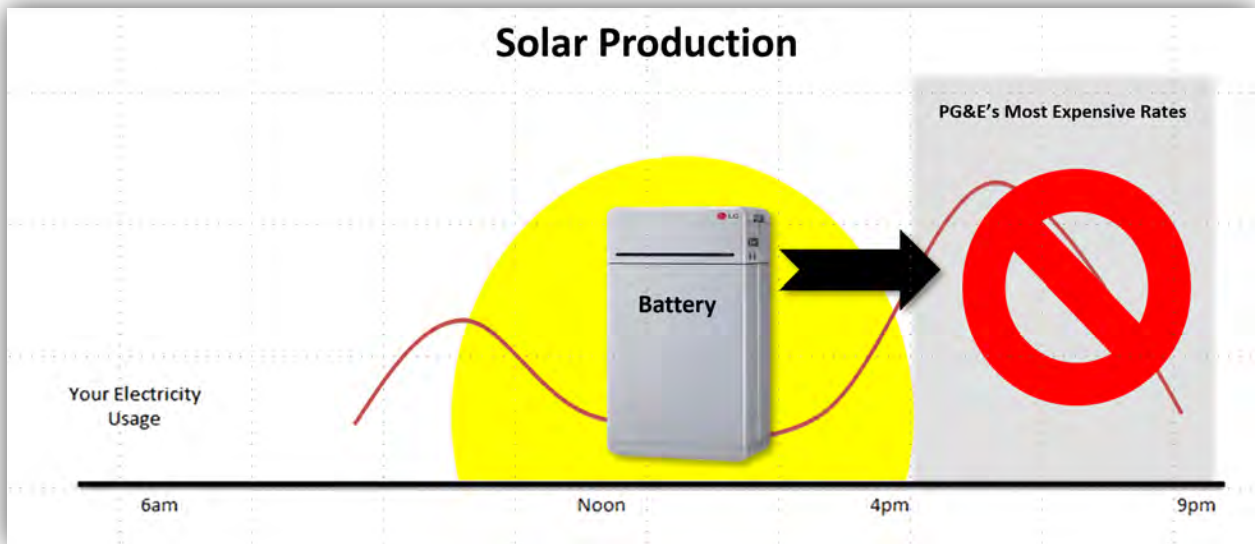
4) BATTERY BACKUP SOLUTIONS

a) Should I Consider Purchasing a Battery Backup Solution?

Look around your home. Your land line phone, fireplace and pilot lights (on stoves and hot water heaters) are likely gone. Our reliance on electrical power has increased significantly over the past 20 years. So, when there is a power failure, we have no communications, no heat and no hot water. Our electricity-intensive society needs backup power more than ever.

Over the past few years, many of our Silicon Valley customers have experienced multiple blackouts, ranging from a few hours to a few days (or more). And these outages are happening in populated suburban areas – not just up in the remote hills. PG&E’s wild fire safety plan (called “Public Safety Power Shutoff”) will dramatically expand the scope of planned grid outages, which are intended to preempt the risk of its grid sparking more deadly wildfires. And living in California it is only a matter of time until the next earthquake hits.

With Time-of-Use rate plans, battery backup solutions allow you to charge from the sun for free during the day, then use that stored energy during the evening when utility rates are the highest.



In a nutshell, with these new solar battery backup and storage solutions you can reduce your electric bill to zero – and provide a reliable source of backup power regardless of the condition of local gas pipelines and the electric grid.

5) CHOOSING THE RIGHT SYSTEM

a) *How Many Solar Panels Do I Need?*

- It may seem counter-intuitive, but you can have too many solar panels on your roof. With conventional net metering, your utility will not reimburse you at the end of the year if you produce more power than you consume. The number of panels you need is based on two factors:

- 1) The available space on your roof and;
- 2) The size of your electric bill.

A good installer will not take advantage of you by installing modules where there is a lot of shade or a poor north-facing orientation on a steep roof. Along the same lines, your installer should analyze your current electric bill and recommend the number of solar panels that will get you close to a zero bill.

Once you know these two boundary conditions – the number of panels that fit on your roof and the number of panels that you need to zero out your bill – you can see what size system fits in

with your budget and method of financing. At the same time your installer should step you through the options for different levels of solar panel efficiency, module electronics (optimizers or micro-inverters), and changes in your future use of electricity (such as an EV or energy conservation measures). For more about determining the optimum size of your solar power system, listen to our podcast on [How Many Solar Panels Do I Need?](#)

a) *What Should I Consider When Selecting a Solar Power System?*

- Like many large purchases, there are a variety of choices available in the market. One size and manufacturer definitely does not fit everyone’s energy, budget and aesthetic needs — and this challenge especially applies to rooftop solar because there are so many solar panels, inverters and mounting systems available. Many solar installation companies will offer you one solution, but being informed about the options available to you can help you make the right purchase and also help you understand which Installation companies are quoting you a solution that is best for your objectives... Since 2001 we have been evaluating and installing this equipment, and have put together a combination of equipment that we categorize as a “Good – Better – Best” range of products that will help you in selecting a solar power system that is ideal for your specific needs.

6) SOLAR POWER SYSTEM MAINTENANCE

a) *What is Required to Maintain a Solar Power System?*

- Almost all solar panels sold in the U.S. carry a 25 year warranty, most inverters are guaranteed for 10 to 25 years, and as long as you get occasional heavy rain your panels do not need regular cleaning. So if you are thinking about solar for your home, the most important considerations – besides price – are the quality and reliability of the installation itself. With these factors in mind, check out our blog post [Ten Tips for 25 Years of Trouble Free Solar Power](#) where we detail critical factors for 25 years of trouble free solar power.

About Cinnamon Energy Systems

The rooftop solar boom started in California during the energy crisis of 2001. Akeena Solar was founded that year in Silicon Valley, which grew to be the largest home solar installation company in the last decade with over 10,000 solar customers in California, New Jersey, New York, Pennsylvania, Connecticut, Colorado and Hawaii. Akeena partnered with the Westinghouse Electric Company to create Westinghouse Solar in 2010, and then merged with an overseas energy company in 2012.

Cinnamon Solar was founded in 2012 to continue the vision at Akeena Solar: developing and installing home solar power systems optimized to produce the most electricity for the lowest price. In 2017, Cinnamon Solar was renamed *Cinnamon Energy Systems* to reflect our broader service coverage including solar and energy storage and battery backup solutions. To keep costs down, Cinnamon Energy Systems only works in locations throughout the greater Silicon Valley.

Barry Cinnamon Founder and CEO of Cinnamon Energy Systems is a long-time advocate of solar power and is a widely recognized solar power expert. Barry started his career in solar energy in the late 1970's at MIT researching new flat plate and concentrating collector designs. His pioneering work on reducing costs of rooftop solar power systems led to over 30 issued and applied for patents, including a number of products that transformed the solar industry, including *Andalay*, the first solar panel with integrated racking, grounding and wiring, the first UL listed AC solar panel with a micro-inverter, and *Instant Connect*, the first fully "plug and play" AC solar panel.

Barry is a NABCEP Emeritus Solar Installer and Instructor, a licensed California C-46 Solar Contractor, former President of the California Solar Energy Industries Association, current Board Alternate of the Solar Energy Industries Association PV Division, and a Senior Fellow of the American Leadership Forum. On any given day he'll either be on a roof working with his installation crews, doing R&D on new solar products in the lab, or working on improving national residential solar policies like net metering and better homeowner financing programs.

Before you Lease or Buy a Solar Power or Battery Backup System in Silicon Valley, Contact Cinnamon Energy Systems

To get a free no obligation quote, visit:

[Cinnamon.Energy](https://www.cinnamon.energy)

or

call us at: [\(408\) 883-7000](tel:4088837000)

