

# SOLAR FAQS

EVERYTHING YOU WANTED TO  
KNOW ABOUT GOING SOLAR



## HARNESS THE POWER OF THE SUN

Solar photovoltaic (PV) systems are a great option for your pocketbook and for the environment.

A federal tax credit can help **bring down the cost of a system significantly**, and Net Energy Metering (NEM) allows solar customers to **accumulate bill credits for the excess solar energy** that is fed onto the grid.

These programs make going solar an excellent investment.

### HOW MUCH DOES SOLAR COST?

The price of your system depends on your electricity usage. To size a system, solar installers will look at your monthly electricity usage over a year or more. They will size the system based on your needs and your roof space. **Average purchase costs range from \$7,000 to \$20,000 before applying the 30% federal tax credit.**

### ARE THERE ANY INCENTIVE PROGRAMS THAT MAKE SOLAR MORE AFFORDABLE?

Yes. **There is a 30% federal tax credit available for solar system purchases made before the end of 2019.** Upon filing your taxes, you can receive 30% of the cost of your system back in a federal tax credit. For example, if you spend \$10,000 on a solar system, at the end of the year you will be eligible for a \$3,000 tax credit. In 2020, the credit drops to 26%, in 2021 to 22%, and disappears in 2022.

### HOW LONG DO PHOTOVOLTAIC (PV) SYSTEMS LAST?

**Solar panels are typically guaranteed to perform for 25 years, but the panels will likely last an additional five to 10 years.** Panels and inverters also carry a minimum 10-year workmanship guarantee. This means that if a panel or inverter breaks down after 10 years, parts will be covered, but you will need to pay for the labor associated with replacing the panel or inverter. If problems occur in less than 10 years, both materials and labor will be covered.



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## HOW MUCH MAINTENANCE DO SOLAR ENERGY PANELS REQUIRE?

Solar panels require very little maintenance and rarely, if ever, break down. Maintenance consists of cleaning the panels once or twice a year. Cleaning can be as simple as hosing the panels off.

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## HOW DO I KNOW IF A RESIDENTIAL SOLAR ELECTRIC SYSTEM WOULD WORK ON MY HOME?

You need a sunny place on your roof about 120 square feet (10 by 12 feet) for smaller systems, and up to 1,000 square feet for very large systems. A south-facing roof area is optimal, but solar panels can be mounted on west- or east-facing roofs as well. Your roof should be in good repair before adding solar panels.

If you don't have sunny roof space available, you can also install a ground-mounted system.

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## I DON'T PLAN ON BEING IN MY HOME FOR 25 YEARS. WHY WOULD I ADD SOLAR?

If you install a solar system, you are adding value to your house. According to research by the Lawrence Berkeley Laboratory in 2015 (Hoen et al), "Home buyers consistently have been willing to pay more for a property with PV across a variety of states, housing and PV markets, and home types." The study found that, on average, houses with solar systems sold for \$15,000 more than comparable homes.

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## HOW HIGH DOES MY BILL NEED TO BE TO GO SOLAR?

There is no minimum electricity bill required to go solar, but the payback period is faster if your bill is higher. If you have a low electricity bill you might consider **purchasing or leasing an electric car and charging your car with your solar system**. The economics of the solar project improve when you factor in the higher electricity usage and you will save money at the pump by cutting out gasoline expenses.

Not sure where to start when thinking about electric vehicles? Visit [ElectricDrive805.org](http://ElectricDrive805.org) for more resources on rebates, incentives and tips.

## DO I GET PAID FOR MY EXTRA ENERGY PRODUCTION?

Through a program called **Net Energy Metering (NEM)**, the utility will give you credits for the electricity that your panels produce that your home doesn't immediately need. That excess electricity is fed back on to the grid. You receive a monetary credit for each excess kWh valued by the time of day that it is produced; electricity produced later in the day (after 4pm) will have the highest value. You use the credits when your solar system is not producing electricity, like at night.

In the summer months of abundant sunshine, you may accumulate more credits than you need, and in the winter months you are less likely to accumulate credits. Through NEM, the utility tracks your home's electrical consumption over the course of 12 months, and you pay your bill just once for the net amount of grid energy that you have used, beyond the value of your NEM credits.

Once you go solar, you will receive a monthly statement from the utility, including your net energy use for that month. The utilities' residential minimum charge is \$10/month. If you use \$10 of electricity each month from the grid (after using up your NEM credits), then the residential minimum charge will not affect your bill. However, if you use less than \$10 of electricity from the grid, you will still be charged \$10 that month as a charge for maintaining your grid connection.

If over a year your system generates more electricity than you have used, you get paid for your excess production. Unfortunately, you only get compensated for that excess electricity at the wholesale price of electricity (about 3 cents/kwh) which is much lower than retail prices. For this reason, it doesn't pay to oversize your system in order to sell electricity back to the grid.



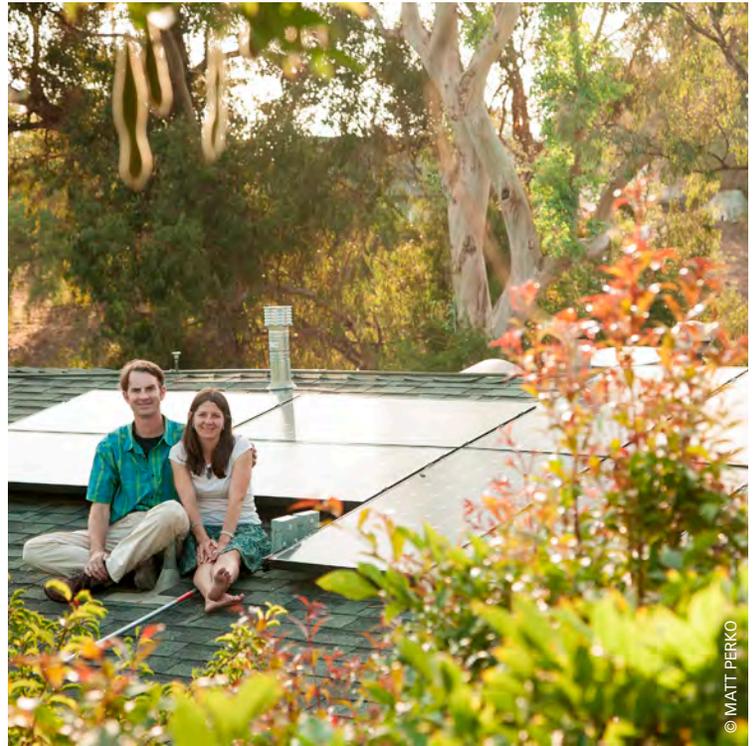
## DO I NEED BATTERIES WITH THE SYSTEM?

The vast majority of solar homes and businesses do not need batteries because they are connected to the electrical grid. Grid tied solar powered homes take electricity from the grid when they need it and deliver excess electricity when they produce it.

Although battery systems are not required, and the cost of batteries is significant, they provide energy when the grid goes down, and there are some financial reasons to consider the investment. Energy prices in California are shifting to new Time-of-Use (TOU) rates, so residents will be charged higher prices in the evening (4-9pm), during times of the highest total energy demand. Batteries paired with solar are now emerging as a favorable option for shifting your energy "load"; batteries can be charged by solar systems during the day, and then discharged in the evening, when grid energy is more expensive. This process of storing and discharging can save you money on your electricity bill, especially if you use a lot of electricity during times of peak prices.

There are also programs that make battery purchases more affordable. Battery systems tied to solar are eligible for the same 30% tax credit as the solar equipment. Utilities also offer a "Self Generation Incentive Program" (SGIP) for customers who agree to use their batteries to shift their energy "load," as described above. Through the SGIP program, incentive payments are proportional to the size of your battery. For example, if you have a 10kWh storage system, the current incentive amount you will receive is \$3,000, in addition to the 30% federal tax credit.

Battery options also include emergency back-up applications, to be used only when the electrical grid is not functioning, and off-grid applications that are most appropriate in rural settings where grid tie is not easily available.





## SHOULD I PURCHASE THE SOLAR ENERGY SYSTEM OR LEASE IT?

If you have the capital available, or are interested in financing and can take advantage of the federal tax credit, it is generally advisable to purchase the system outright. Purchasing the system will provide you with the best return on investment.

If you have the capital available, but cannot take advantage of the tax credit (for example you are retired and have limited tax liability), you might be better off with a pre-paid lease.

If you can't afford the upfront cost, are not interested in financing a system, and have a credit score of 650 or higher, a lease might be a good option.

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## WHAT ARE MY FINANCING OPTIONS?

Financing a solar system may be the best option for customers who cannot pay for the system upfront, because you will own the system and receive the tax credit. A solar loan can be structured so your payments are similar to, or lower than those of your pre-solar electricity bills. Once you pay off the loan, you receive free electricity from the system. For some customers, solar loans with terms of 2.9 APR over 10 years may be available. In addition to these unsecured solar loans, customers may consider taking a home equity line of credit (HELOC) to purchase their solar system. A benefit of HELOC financing is that the interest paid on these secured solar loans is often tax deductible.



## HOW DOES A SOLAR LEASE OR A POWER PURCHASE AGREEMENT (PPA) WORK?

A solar lease is generally a 20-year contract between you and the leasing company in which the leasing company owns and maintains the solar energy system and you pay a monthly fee for the electricity that the panels generate to power your house. The leasing company is responsible for the operation and maintenance of the panels for the duration of the 20-year lease.

In all lease agreements, you still must pay the utility a basic monthly connection fee and a yearly true-up bill for your net electrical consumption beyond what your solar system generates.

The most common lease structure is a **POWER PURCHASE AGREEMENT (PPA)**. You pay the leasing company a predetermined price per kilowatt hour (kWh) of electricity that is produced by the solar panels. This price is usually lower than the average price per kWh that you were previously paying to the utility.

With a PPA, you can go solar for \$0 down and see up to a 25% reduction in electrical bills in the first month of going solar. Your actual savings will depend on your credit score and how you decide to structure your lease. For example, PPAs usually have escalator rates associated with their fees. The escalator raises the price per kWh each year. A higher escalator rate results in higher electricity costs over the life of the lease agreement. It is prudent to negotiate the lowest escalator rates possible in order to lower the costs of solar leasing.

A less common lease structure is a **PRE-PAID LEASE**. You pay a single upfront amount for the electricity that the panels will generate over 20 years. No additional payments are needed to the leasing company over the course of the lease. This arrangement may be beneficial if you cannot take advantage of the federal tax credit.