



# Introduction

Our mission at Gold Path Solar is to help people find and navigate their brightest path forward. So what does that mean for you? Well, we know that solar makes sense for the vast majority of homes in America. However, the most common feedback from homeowners looking into solar is a feeling of overwhelm. There is a mind-numbing amount of information out there that makes it difficult to determine what's real, what's relevant, and most importantly, what's best for your home and financial situation. Our job is to cut through the noise and give you the tools you need to feel stress free on your way to reduced bills and increased self-sufficiency with home solar. That is why we have made this Solar Buyer's Guide, so that every homeowner we meet is prepared to walk down the path towards energy equity, sustainability, and security. We aim to set the Gold Standard for installation excellence of solar panel and energy storage systems, and a key part of achieving this goal is educating the home and business owners we work with.

If you've ever ready your electric bill, you most likely have seen the term kilowatt hour (kWh). Every day, the energy going into your home is measured by your utility meter and counted in kWhs, which you are then billed for at the end of the month, or billing cycle. The national average retail rate for kWhs from the grid is almost 14 cents (13.9 cents). The average cost per kilowatt hour (kWh) produced from a solar array is anywhere from 3 cents to 7 cents. This is also called the levelized cost of energy (LCOE) which is determined by taking the total production, in kWhs, from the solar array and dividing it by the total cost while under warranty (typically 25 years). So if you are wondering if solar will save you money on your electric, the short answer is absolutely yes. We have reached "grid parity", meaning it is now cheaper to install your own solar than to stick with the current status quo. This is what makes solar for your home so popular and a no-brainer for most homeowners. However, homeowners often have projects with a variety of goals and needs, and there are different incentives available in certain areas of the country. Your financial situation and tax obligations can also qualify for or exclude you from incentives. For example, some homeowners are driven by the want to save on their electric bills, while others may want to be more independent from the grid. Some homeowners want the peace of mind that comes with knowing they will have some backup

power when the grid fails them. This guide is meant to help you determine for yourself what your needs are, and to guide you as you pick the right partner to help you meet those needs. The right solar panel system for you is out there, and we want to be the partner that helps you find it.

We put people first in every decision we make, which starts with our structure. Gold Path Solar is an employee owned business, with great people who love what they do. Our people understand that the long term success of our homeowners means success for the organization, and in turn success for them. Our goal is to provide clarity to the confusion and make the most of your time. This guide covers the basics of solar installation, solar ownership, and being a member of a growing solar community. We look forward to working with you to build that community!

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Home Solar Comparison Guide

# Solar 101

## How Does Solar for Your Home Work?

Homeowners everywhere are installing solar panels on their property and enjoying the benefits. But how does the solar array actually work? It all starts with the panel. Solar panels are made up of groups of photovoltaic (PV) cells with two layers of silicon, one that is positively charged and one that is negatively charged. There are other types of solar material and products out there, but virtually all the home solar installations in the US are made up of Monocrystalline photovoltaic panels. When sunlight hits these PV cells, an electrical current is created. The electricity created is Direct Current (DC) and is not suited to power your home. To be able to use this energy produced by the solar panels, it must be converted into Alternating Current (AC) electricity. This AC electric is what our homes and the grid run on, because the current is more stable and predictable. This conversion from the less stable DC to the more reliable and safer AC is done with a piece of hardware called an inverter. The original converter turned AC electric to DC, which is why the equipment that goes from DC to AC is called the inverter (opposite of the converter). The AC electricity is then run through the Main Service Panel (MSP) in your home, where all your breakers that control the electricity in your home are located. Your home then actually consumes the clean, green power you are creating locally! Any excess energy is then sent out through the utility meter and carried away by the utility lines to be delivered to your neighbors' homes or stored in a battery for later use.

All solar installations operate in the same way: solar panels create DC that is then converted to usable AC, which is then either used locally at the property, sent to the grid, or stored for later. The differences start with the variations in how and when the DC electric is converted to AC and how it is consumed. Solar installations are broken down into two categories based on the type of inverter used, you either have a microinverter or string inverter system. The main difference between these systems is that in a microinverter system, the DC to AC conversion happens in a decentralized way (microinverter systems are sometimes referred to as AC or decentralized), often with multiple microinverters spread out between the panels on the rooftop. The system itself converts the DC to AC right away before the current is sent anywhere. In the string inverter system, the DC to AC conversion happens at a centralized location, with the DC electric being sent from the panels to a single inverter or small group of inverters depending on the system size (string inverter systems are often referred to as centralized or DC). For more information on this, see our products section. Beyond that, the other major variation in solar installations has to do with how the electric is consumed.

## Grid-Tied Systems (Most Common)

This solar panel system is the most common in the US because it allows homeowners to maximize their return on investment and save the most money possible on their electric costs. In many states, your utility company will actually count the electricity in units called kilowatt hours (kWh) and credit you back the kWhs you deliver to the grid. They then sell your kWhs to your neighbors, which is cheaper than producing kWhs miles away and delivering them to your neighbors' homes. At night time, when your solar array is no longer producing, your home will then draw power from the grid exactly the same way homes without solar do. This eliminates the need for a storage component of the system, since the grid is replacing that function. You are able to enjoy the stability of the power grid, and only get billed for the kWhs you consumed minus any kWhs you were credited for by the utility company. This arrangement is often called **interconnection** or **net metering**, because you are only billed for your "net consumption".

This is the most common solar installation in the United States, and is known as grid-tied. Your home is still using the power from the grid when it needs it, and selling back excess electricity when it doesn't, allowing you as the homeowner to experience the best of both worlds. Eliminating the need for storage saves costs and increases your Return on Investment (ROI) dramatically. The average cost per kWh produced from a solar array is anywhere from 3 cents to 7 cents, this is also called the levelized cost of energy (LCOE). The national average retail rate for kWhs from the grid is almost 14 cents (13.9 cents). This is what makes the grid-tied system the most popular option and a no-brainer for most homeowners. However, in certain areas, like areas where time-of-use (TOU) charges are prevalent, batteries may help to increase a return. Some homeowners want the peace of mind knowing that they will have some backup power when the grid fails them. This type of system is often referred to as "hybrid" or "grid-tied with backup".



## Grid-tied With Backup

The second most common type of solar installation is the grid-tied system with backup capabilities. This functions in the same way as a grid-tied system, except that when the system is over producing, it will first fill up a battery connected to the system. So in an AC inverter system, the DC electric is converted to AC then stored in the battery for use at a later time. These kWhs can be deployed to offset time-of-use (TOU) charges from your utility company or to power the critical loads of the home when the grid is down and power is out. In situations with TOU charges, kWhs from the grid can cost anywhere from ten percent more to ten times more than a kWh would otherwise cost. Utility companies levy these TOU charges to hopefully incentivize homeowners to lower their demand on the grid during the highest times of consumption. These high demand times cause stress on the grid, and often force utilities to spend the money to buy more kWhs from more expensive suppliers or turn on additional generation plants. This time of high demand is often referred to as “peak hours”. There are even entire plants, called “peaker plants”, that only exist to help provide excess capacity for when the demand gets too high for normal operations. These windows of increased demand cost utility companies an extreme amount of money, which they then pass onto homeowners. An example of this is in South Carolina, where peak hours are from 6:00pm to 9:00pm in the summer, and an added 6:00am to 9:00am in the winter season. The cost of the kWhs during those time windows are more expensive than any other time of day, because that is when people are heading to work or coming home from work. Homeowners are consuming more energy (cooking food, starting laundry, etc.) and adding stress to the grid. Solar with battery storage can be programmed to release kWhs during these windows, so that the homeowner avoids consuming from the grid and saves money during those peak hours.

The other practical use for a hybrid system is to add backup capabilities to your home. A standard 10kW battery system can provide an average home with hours worth of backup power on important and low energy consuming products and outlets. Some of the most commonly backed up loads include refrigerators, lights, and WiFi outlets. This small, important set of outlets backed up by a battery or generator is often referred to as the “critical load”. Depending on your needs and budget, the solar and battery storage systems can be expanded beyond the standard 10kW battery system. The more batteries you have, the more you can back up. However, what if your home requires something that can never be without power? A system like this can be compatible with a backup generator, if you use the right products. This generator addition helps to ensure seamless energy availability even if there is a stretch of bad weather or a spike in demand that would drain the kWhs in the battery system. This type of system is great for a homeowner that has a critical function hooked up to the power at the home, such as medical equipment or important work equipment.

When considering a hybrid system, you need to understand your energy needs and your utility company’s billing policy. Consider the following questions: how often do you lose power? For how long do I lose power? Do I get charged the same rate for all my electricity consumption, or does my utility company charge me more for peak demand hours (Also known as TOU charges)? What can I live without during a power outage? These questions will help you determine what’s right for your home. These interests or needs are often weighted against the desire to control your project costs and save money, so be sure to work with a solar installer who is willing to work with you through these questions. Be weary of anyone trying to push a cookie-cutter system on you with storage attached. This may not be the best solution for you. Instead, look for a partner who will personalize a solution based on your goals for the home solar project.



## Off-Grid

In America, most homeowners experience affordable and reliable energy from their utility company. This fact, along with interconnection policy being available in many states, makes off-grid systems a less popular option. Off-grid systems are often simply not necessary: if you have a connection to the grid, why not use it? It provides stability if your solar array were to ever fail to provide enough energy to meet your consumption. However, in some remote areas or areas with no interconnection policy, off-grid solutions can make sense. Off-grid systems have solar panels that produce DC power, the inverter(s) convert it to AC, the property consumes the power, and the excess is stored in batteries for later use. These off-grid systems are also referred to as closed systems or islanded systems, because they are completely on their own. If the batteries are full and all the energy demands of the home are met, the panels simply taper down to match the home demand. This means the solar panels are no longer producing as much as they could, and that excess capacity goes unused. This arrangement is great for remote homes that only need a certain amount of power, and aren't concerned with getting the maximum return for their dollar by selling kWhs back to the grid. Temporary living situations like cabins used for camping and hunting are great examples of structures that could benefit from off-grid solar. People who want to reduce their carbon footprint to as minimal as possible, such as people who live in "tiny homes" are also great candidates for off-grid solar.



## Ground Mounted Systems

This type of solar installation can be on-grid, hybrid, or off-grid. A ground mounted system is a solar array that requires some sort of supporting structure to be built to hold the solar equipment in place, as opposed to using an existing roof. The pros of a ground mount include flexibility of location, optimized panel placement, overcoming limited roof space, and can improve aesthetic appeal. The solar mount itself can be placed in an area of unused land and can be a great solution for people without the adequate roof space to hold the solar panels, and for people concerned with the aesthetics of panels on the roof of the home. The solar panels often are angled perfectly and facing directly south, which maximizes electricity production. However, there are some significant cons with the ground mounted solar system. The most significant challenge with a ground mount is the increase in cost. Ground mounts require additional material and labor required to build the supporting structure for the solar panels. In addition to this cost, solar ground mounts often include trenching, which disturbs landscaping and again raises costs. For the average homeowner, it is safe to assume that a ground mounted solar array is always going to cost more money. The increases in efficiency from the ground mount almost always does not offset the additional costs. That is why roof mounts are so much more common. In addition, homeowners associations and certain jurisdictions won't allow ground mounted solar arrays.

# Incentives

## Tax Credits

As if home solar wasn't already a major no-brainer to help control your energy future, there are some key incentives available that many homeowners qualify for. Below is a breakdown of the most impactful incentives that have allowed home and commercial solar to really take off.

- A "tax credit" is a dollar for dollar reduction in the income tax you were otherwise due to pay. The Solar Investment Tax Credit, or ITC, is a 30% tax credit for residential and commercial solar customers. Homeowners who sign up for solar simply enter the total cost of their solar array in the appropriate section of their taxes then, based on their tax appetite, will receive up to 30% of the total cost of the system back!
- These tax credits are not to be confused with a tax deduction. A tax deduction simply lowers the amount of income you have that qualifies as taxable.
- *Example: If your household earns \$100,000 in income annually, you are responsible for paying taxes on that \$100,000. If you have a \$20,000 tax deduction (often referred to as a "write off") you now owe taxes on your taxable income less the amount of the deduction, or  $\$100,000 - \$20,000 = \$80,000$ . This lowers your overall tax bill, but by less than \$20,000 because it just reduces your tax liability. You save a certain percentage of that \$20,000 that would have otherwise been taxed.*
- *Tax credits actually work as a dollar for dollar match. So if your household earned \$100,000.00 and you paid \$40,000 in taxes throughout the year, let's say through W2 withholdings, and you have a \$20,000 tax credit, you are actually owed that money back. The \$20,000 is yours to keep! It is not a deduction or "write off" that will save you some percentage of your tax liability. The tax credits are phenomenal, but they might not even be the best benefit of going solar.*

## Net Metering

Picture this: it's noon on a mid-August day and there isn't a cloud in the sky, and you are at the lake, or out enjoying any afternoon activity. As the bright sun beats down on your beautiful solar array you might ask yourself: what's happening to all that energy my panels are producing?

- Well, that's where Net Metering comes into play, and it's one of the best and most-exciting benefits of going solar!
- Net Metering is an electricity billing mechanism that allows homeowners to use their electricity anytime, instead of when it's generated. With net-metering, your utility grid acts, in some ways, as your own personal battery!
- *So back to the afternoon out: your home is using energy generated by the solar panels to power your refrigerator, AC unit, and any other electricity running through the house - but when your house's energy demand is fulfilled, the excess energy your home solar array produces is purchased and stored by your utility company!*
- *Essentially, your utility company builds up a bank of unused energy you, as a homeowner, can then pull from if there are times when you aren't producing as much energy as you are consuming. For example, in January when the sun isn't around as much and you're cranking up your electric heat.*

You may be asking yourself right now if you and your property would qualify for these incentives. Ask yourself: do I own a home or commercial property? Do I pay an electric bill at that property? Do I pay income tax? If the answer to those questions are "yes", then you more than likely would qualify.

[Reach out today to discuss a solar project with a pro!](#)



# How To Pick a Partner

For most homes, we know solar for your home just makes sense. Google's Project Sunroof used satellite imagery and irradiance mapping, or heat mapping, to show that over 80% of the homes in America qualify and are viable for solar installation. That's over 77 million homes! However, only 4% of these homes currently have solar. With all the federal and state incentives, why wouldn't it make sense for most homes to go solar, especially as our utility companies are raising our rates to unprecedented levels? All of these reasons provide clear certainty regarding the benefits of installing solar panels. What isn't certain, however, is the success of your home solar array, mainly because of the wide range of potential solar installation partners out there. We believe this is why so many American homeowners haven't gone solar: they simply don't know about or understand all the benefits! They have not yet found the right partner to guide them along their journey to energy security and lower electric costs. There is so much information available, coming from so many different angles. We at GPS are here to help you navigate through the misinformation to help uncover the best solar installation for your property.

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An issue in the home solar world, and really the contracting world in general, is companies over-promising and under-delivering. Claims can be exaggerated and details overlooked. By the time you as a new solar homeowner realize it, it's too late and you are left standing there holding the bag. Because of this, it's important to ask probing, relevant questions to all potential solar installers. Homeowners tend to focus on the type of solar panel used when signing up for solar, which is very important, but there are plenty of other questions to ask a potential solar installer before signing off on the partnership. What are the warranties involved (parts and labor)? Who services said warranties? How will my new solar installation partner know when something isn't right with my solar array? What sets you apart from the dozens of other solar installation organizations in my area?

The beauty of buying solar, or anything really, in the digital age is everything is online. Positive or negative, it's easy and important for a customer to write about their experience via an online review. Home solar installers can't easily hide from poor reviews or a bad reputation, so be sure to examine a potential solar partner's online presence! Solar installations, like any home improvement, comes down to who you hire. So make sure you find someone who isn't going to push a one-size-fits-all solution on you. Find a solar installation partner that is going to be with you from start to finish and beyond, to protect your most valuable asset: your home. We have a "shopper's matrix" below to make sure you are asking all the right questions when evaluating potential install partners. This tool will help you protect that valuable asset.

# Understanding Your Electric Bill

Owning solar means that you are in control of your energy future. To really take ownership, however, you need to understand how the billing works and how solar panels will ultimately save you money, which gives you more flexibility and control over your home's power consumption. This starts by understanding the different aspects of your bill. For some homeowners, an electric bill can seem like a confusing document filled with technical terms and numbers. But understanding it is crucial for managing your energy usage and controlling costs and understanding the value of your solar. We will break down the components of a typical electric bill and explain what they mean, so you can feel even more empowered by your decision to install solar and possibly batteries on your home.

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## Kilowatt-Hours (kWh)

Electricity usage is measured in kilowatt-hours (kWh). One kWh equals the amount of energy used to run a 1,000-watt appliance for one hour. For example, if you use a 100-watt light bulb for 10 hours, that's 1 kWh. Your total kWh usage is a major factor in determining the cost of your bill. Typically, your bill will show the number of kWh you used during the billing cycle.

*Pro Tip: Solar will reduce your demand for kWhs. However, in many cases with current utility rules and available roof space, solar might not meet 100% of energy demands. To reduce your kWh usage to make up the difference, solar and storage can be combined with other cost saving measures. Consider switching to energy-efficient appliances, LED lighting, and smart home technologies.*

## Delivery Charges

These are the costs associated with delivering electricity to your home through the power grid. They include maintenance of power lines, substations, and other infrastructure. Even if your electricity supply comes from a third-party provider, the delivery charges are usually handled by your local utility company. In most cases, producing your own solar energy directly reduces these on your bill, as they are typically charged "per kWh".

## Supply Charges

Supply charges reflect the cost of the electricity you consume. These are based on your kWh usage and the rate charged by your supplier. If you're using a third-party energy provider, this is the portion of your bill that will reflect their pricing. In all cases, solar again reduces this portion of your bill by replacing kWhs normally purchased through the grid.



### Third-Party Charges

If you've opted for a third-party energy supplier, these charges will appear separately. Third-party suppliers may offer different rates or renewable energy options. While this can potentially save you money, it's important to carefully review their terms and compare their rates with your utility company's default rates. Solar can have a positive, reducing effect on these, but it depends on your specific utility and how it is regulated. For many of the publicly traded utilities, like Duke, AEP, Dominion, AES, First Energy and other subsidiaries of First Energy, you can either opt out of third party programs when going solar or add them to help reduce your bill further. The right solar installation partner can help you navigate these decisions.

### Taxes and Fees

Local, state, and federal taxes, as well as regulatory fees, are typically added to your bill. These charges can vary depending on your location and are often calculated as a percentage of your total usage or charges. Since it is based on a percentage and your overall bill is reduced by solar, these costs are often reduced as well.

### Fixed Costs (Basic Service Charges)

Most electric bills include a fixed monthly charge, often called a basic service charge or customer charge. This fee covers administrative costs, such as billing and customer service, and is not tied to your energy usage. Even if you don't use any electricity in a billing period, this charge will still apply. Solar sometimes actually can affect these types of charges by building up an over production credit that is applied to the account, but this might not make sense in all cases for every homeowner. The payback for over producing might be outweighed by the additional cost. Again, the right solar panel installation partner can help with this.

Most utility companies will have similar bills, with the now recognizable standard charges and fees. However, it is good to keep in mind a few things to look out for. First, understand how your utility company is regulated. Is it a publicly traded utility, under the authority of a state and federal board such as the Public Utilities Commission of Ohio (PUCO) or is a privately held cooperative that has different rules for solar homeowners? These different utilities have different standards for how solar homeowners are treated, and it is best to work with a solar installation partner with experience working with your specific utility.

# Solar and Storage Components

When making the decision to go solar, it's important to ensure that your system is designed with products that are both high-quality and economical in order to achieve your goals. The primary factors that make up a complete solar array are **panels, inverters, and the Balance of System (BoS) and Bill of Material (BoM) components**. In addition, your goals may also include additional accessories such as **Backup Power components (batteries and/or generators), or Solar EV Chargers**.

## Panels

The first thing that the vast majority of people motivated to move forward with a solar PV system for their home think of when it comes to a solar array is the solar panel they will use. While there is considerable information available regarding panels out there, wading through this information in order to make your decision in choosing and navigating your best path forward can be difficult. While there are countless panel options out there, from budget panels to premium panels, the most important factors to consider when choosing which panel to have installed are the **efficiency or power rating of the panel relative to size and cost, and the long term economic viability of the panel**. Put more simply, you'll want to ensure that your panels are able to produce the power necessary to offset all or part of your energy needs at a price point that allows you to save money over the lifetime of the system (25+ years), along with the assurance that the manufacturer of the panel will be able to uphold their full product and performance warranties during that time. Utilizing these two factors for the selection of panels will take you to Bloomberg Energy's **Tier 1 List**, which factors in the quality and level of service related to the panel itself, with the manufacturer's long term economic outlook as well.

## Inverters

Solar inverters are components of the PV system that convert the direct current, or DC power, created by the solar panels, into usable alternating current, or AC power current to power your home. While not typically as central to the thought process of the average solar buyer as panels, inverters are arguably the most central part of the PV system, as they are the piece that both makes your power usable for offsetting your energy needs and allowing you to expand your system in the future, add backup, utilize off-grid power, etc. The two main types of inverter seen in the majority of residential PV systems are **microinverters** and **string inverters**. String inverters have existed longer, and make the conversion from DC to AC at one single point from a string of PV panels. Microinverters are a relatively newer technology, and make the DC to AC conversion at the panel level itself, usually with one microinverter per panel in the system. While string inverters typically have a lower upfront cost, microinverters are generally more efficient, have a longer warranty period (25 years vs 12 years typically), and allow for more versatile applications of the power produced. An inverter that is efficient, backed by a quality company with long term viability, and the ability to provide applications such as day-time backup and integration with batteries and/or generators will maximize the quality of your PV system.

## Balance of System (BoS) and Bill of Material (BoM) Components

With PV systems, BoS typically refers to all of the electrical components involved in the system outside of the panels and inverters. This mainly refers to the wiring, connectors, disconnects, and controllers related to the system. While these make up a smaller portion of the cost of the system than the aforementioned parts, it is nevertheless vital that your solar installer is able to choose the components that will both maximize the efficiency of your system and adhere to code standards regarding sizing and placement of these items. BoM refers to the raw non-electrical materials of the system- the racking, nuts, bolts, footers, and conduit that allow for the proper installation of the panels and ensure the system will last beyond its warranty period.



### Backup Components

Many solar customers are interested in backup capabilities from their PV systems- typically backup is achieved through batteries, generators, or some combination of the two. In addition, as mentioned when discussing inverters, some inverter systems allow for day-time backup from the solar panels themselves during times of loss of grid power. Daytime backup is a great way to obtain some level of backup from your system without the higher start-up costs of a battery or generator. When deciding to move forward with a battery installation, the most important factors to consider are the amount of energy required to power any desired circuits to be backed up for a certain length of time, and the amount of power needed to start and/or run these circuits when they are being utilized during an outage. In cases where indefinite backup of very high-power items or an entire home are desired, a high-power whole home generator or partial home generator may be the best choice. The majority of customers choose to start with a back-up ready system with daytime backup, which allows for the utilization of solar production during an outage while being ready to relatively seamlessly add batteries in the future.

### Solar EV Chargers

Some inverter manufacturers offer solar EV chargers that are able to be integrated with their inverter systems, to allow for high-efficiency charging of EVs directly from the sun, rather than a less-efficient charger running from the grid on your home's electrical system.

# Solar Products and Brands

There are a number of products that go into a solar array for your home or business, but for the practical purpose of this buyer's guide, we will focus on the four main components and mention a few popular ad-ons. These four main components are:

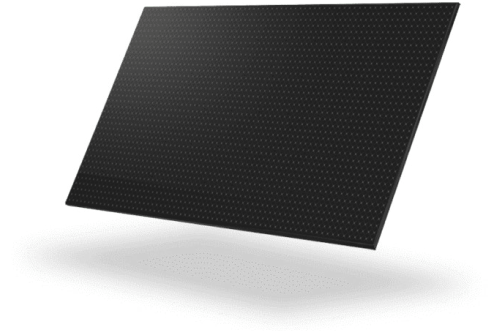
- 1. Solar Panels**
- 2. Solar Energy Inverters**
- 3. Home Battery Systems**
- 4. Solar Panel Mounting and Racking**

*\* There are also add-ons and additional products to consider when installing solar such as smart Main Service Panels (MSP), Electric Vehicle Chargers (EV), Critter Guard, Generators both portable and fixed, Smart Home features and more. If you are curious about a product, ask! A quality solar installation partner will be able to help guide you on a decision about what is right for you and your home.*



## Solar Panels

The first item that comes to mind for most homeowners in the solar panel itself. When selecting solar panels for your residential installation, it's essential to evaluate key factors such as efficiency, durability, warranty, and overall value. We compare three popular options along with an "industry standard" panel, which is in industry average comparison. The standard Silfab panel, the standard REC panel, the standard Q CELLS panel, and a representative industry-standard monocrystalline panel.



### Silfab Panels

**Efficiency and Performance:** The Silfab 430W QD panels stand out with a high power output and impressive efficiency, making them an excellent choice for maximizing energy generation in residential installations.

**Durability:** Manufactured in North America, Silfab panels are known for their robust build quality and stringent quality control standards, ensuring long-term performance.

**Warranty:** Silfab offers an industry-leading 30-year product and performance warranty. This extended warranty reflects the company's confidence in their panel's durability and performance over time.

### REC Standard Panels

**Efficiency and Performance:** REC Alpha Pure Series panels are highly regarded for their solid efficiency and reliability, performing well in various climates.

**Durability:** REC panels feature innovative technologies to enhance resistance to temperature variations and mechanical stress.

**Warranty:** REC standard panels typically come with a 25-year product and performance warranty, which is competitive but shorter than Silfab's warranty.

### Q CELLS Standard Panels

**Efficiency and Performance:** Q CELLS Peak DUO BLK ML panels are a popular choice due to their balance of efficiency, cost-effectiveness, and reliable performance in diverse environmental conditions.

**Durability:** Q CELLS employs advanced manufacturing techniques to ensure durability, including excellent resistance to weathering and degradation.

**Warranty:** Q CELLS offers a standard 25-year product and performance warranty, aligning with industry norms.

### Industry Standard Monocrystalline Panels

**Efficiency and Performance:** Industry-standard monocrystalline panels typically offer good efficiency and performance, making them a versatile option for residential systems.

**Durability:** These panels are designed to meet general reliability standards, ensuring dependable performance under typical operating conditions.

**Warranty:** Most industry-standard monocrystalline panels come with a 25-year product and performance warranty, which will preform at about 85% efficiency when compared to day 1 at the end of year 25. This is consistent with the warranties offered by REC and Q CELLS.

### Why Choose Silfab 430W QD Panels?

The Silfab 430W QD panels deliver superior value for residential applications due to their high efficiency, reliable performance, and extended warranty. The 30-year warranty at 91% efficiency at year 25 offers homeowners additional peace of mind, ensuring that their investment is protected for a significantly longer period than the standard 25-year warranties offered by REC, Q CELLS, and industry-standard monocrystalline panels. This extra coverage can translate into lower lifetime costs, as you are less likely to incur repair or replacement expenses after 25 years.

In addition, Silfab's North American manufacturing minimizes supply chain disruptions and supports local economies, making it an attractive option for environmentally conscious homeowners.

### Gold Path Solar Recommendation

While REC, Q CELLS, and industry-standard monocrystalline panels are excellent choices, the Silfab 430W QD panels stand out for their combination of high performance, superior durability, and an industry-leading 30-year warranty. For homeowners seeking a long-term, reliable solution with added peace of mind, Silfab is the recommended option. We are also vendor agnostic, and always evaluating the best possible products for your home, so this recommendation may change with market conditions.

## Solar Energy Inverters

When comparing Enphase and SolarEdge inverters, both have distinct advantages tailored to specific installation needs. Enphase specializes in microinverters, which convert DC to AC power at each individual solar panel, enhancing system reliability and performance monitoring. In contrast, SolarEdge utilizes a central inverter paired with power optimizers at each panel, aiming to maximize overall system efficiency.



### Advantages of Enphase Inverters

**Reliability and Warranty:** Enphase microinverters come with a 25-year warranty, reflecting their durability and the company's confidence in their longevity. In contrast, SolarEdge central inverters typically offer a 12-year warranty, with options to extend to 20 or 25 years at an additional cost.

**Scalability:** Enphase systems offer greater flexibility for expansion. Adding more panels is straightforward, as each comes with its own microinverter, allowing for easy system scaling without significant modifications. SolarEdge systems, however, are limited by the capacity of their central inverter, which may require replacement if system expansion is desired.

**System Resilience:** With Enphase, if a microinverter fails, only the associated panel is affected, minimizing energy loss. In a SolarEdge system, a central inverter failure can result in a complete system shutdown, leading to more significant energy production losses.

### Advantages of SolarEdge Inverters

**Efficiency:** SolarEdge systems boast a higher efficiency rate, with overall system efficiency around 98%, compared to Enphase's 97%. This means SolarEdge systems can convert a slightly higher percentage of solar energy into usable electricity.

**Cost-Effectiveness:** SolarEdge systems are generally more cost-effective, as power optimizers and central inverters are less expensive to produce than microinverters. This can result in lower upfront costs for SolarEdge installations.

**Suitability for Long Wire Runs:** SolarEdge's system design is advantageous for installations requiring long wire runs or trenching. The central inverter setup allows for higher voltage DC transmission over longer distances with reduced power loss, making it more efficient and cost-effective for such scenarios.

In summary, Enphase inverters are particularly well-suited for installations prioritizing reliability, scalability, and resilience, especially in residential settings or where future system expansion is anticipated. On the other hand, SolarEdge inverters may be more appropriate for installations where efficiency and cost-effectiveness are paramount, particularly in projects involving long-distance power transmission.

For a more in-depth comparison, you might find the following video helpful: [Enphase IQ vs. SolarEdge: Best Solar Inverter 2024](#)



## Home Battery Systems

When comparing home energy storage solutions, it is important to understand your needs. When considering which battery is right for your home, the two most important components are to consider the amperage needed and the amount of energy storage needed, usually measured in kWhs. Think of these like the engine power (amps) and the total gas tank (kWhs). For example, a home with an all electric heat pump that uses around 2,000 kWhs a month in electric is going to have vastly different needs than a home with gas heat only using 800 kWhs a year. Below we have a breakdown of the three most popular brands, all of which Gold Path Solar has experience installing. The FranklinWH aPower 2, Enphase IQ Battery 10C, and Tesla Powerwall 3 each have distinct features and specifications that are better in certain situations.



### FranklinWH aPower 2

**Usable Capacity:** 15 kWh  
**Continuous Power Output:** 10 kW  
**Battery Chemistry:** Lithium Iron Phosphate (LiFePO<sub>4</sub>)  
**Warranty:** 12 years

The aPower 2 offers a substantial capacity suitable for larger energy demands. Its high continuous power output supports multiple large appliances simultaneously. The use of LiFePO<sub>4</sub> chemistry enhances safety and longevity. However, the initial investment is relatively higher compared to other options.

### Enphase IQ Battery 10C

**Usable Capacity:** 10.08 kWh  
**Continuous Power Output:** 3.84 kW  
**Battery Chemistry:** Lithium Iron Phosphate (LiFePO<sub>4</sub>)  
**Warranty:** 10 years or 4,000 cycles

Enphase's modular design allows for scalability, enabling users to customize storage capacity by adding multiple units. The IQ Battery 10C is well-suited for backing up essential circuits and smaller appliances. Its integration with Enphase microinverters offers seamless operation within Enphase solar systems. Nonetheless, the continuous power output is lower, which may limit the number of high-demand appliances it can support simultaneously.

### Tesla Powerwall 3

**Usable Capacity:** 13.5 kWh  
**Continuous Power Output:** 11.5 kW  
**Battery Chemistry:** Lithium-Ion  
**Warranty:** 10 years

The Powerwall 3 features an integrated solar inverter, simplifying installation and reducing the need for additional components. Its high continuous power output can handle multiple large appliances concurrently. The competitive pricing makes it an attractive option for many homeowners. However, availability can be limited due to high demand, potentially leading to longer wait times for installation.

### Considerations

**Integration:** The Powerwall 3's integrated inverter can reduce overall system costs, while the Enphase IQ Battery integrates seamlessly with Enphase microinverter systems. The FranklinWH aPower 2 is compatible with various inverters, offering flexibility in system design.

**Scalability:** Enphase's modular approach allows for tailored capacity expansion, whereas Tesla and FranklinWH systems can also be expanded but may require more planning.

**Cost:** While the Powerwall 3 is often more affordable, the total system cost can vary based on installation specifics and additional equipment requirements. FranklinWH systems may have higher upfront costs but offer robust performance. Enphase systems provide flexibility in scaling but may become costlier as capacity increases.

Selecting the appropriate battery system depends on individual energy needs, budget, and existing solar infrastructure. Consulting with a certified installer can provide personalized recommendations tailored to specific circumstances. This is the key aspect of selecting a battery: first selecting an expert partner that will take you through the different features, consider your situation and goals, and make a solar and battery recommendation that is best for your home.

## Solar Panel Mounting and Racking

Solar racking (or mounting) systems are critical components of a solar energy installation. They securely attach solar panels to various surfaces, such as roofs, ground mounts, or poles, while ensuring proper orientation and angle for maximum sunlight exposure. Solar installation companies will often try to shave costs by going with a cheaper option here, since many homeowners do not ask about how the panels are affixed to the home. However, the racking and mounting systems are an extremely important and should not be overlooked. A quality solar racking system must provide:

- 1. Durability: Withstanding environmental factors like wind, snow, and heat.**
- 2. Ease of Installation: Designed for efficiency and simplicity during setup.**
- 3. Adaptability: Compatibility with different roof types, ground conditions, or unique project needs.**
- 4. Safety: Maintaining structural integrity to protect both the panels and the property.**



### Comparing IronRidge's Hug Mount Racking System to SnapNrack

#### IronRidge Hug Mount Racking System

**Design:** The Hug Mount system is a low-profile racking solution, designed specifically for installing panels on composition shingle roofs. Its compact design hugs the roof surface, providing a sleek aesthetic while minimizing visibility.

**Material Quality:** Made from anodized aluminum and stainless steel hardware, ensuring corrosion resistance and long-term durability.

#### **Key Features:**

- Flashing-integrated components for superior waterproofing
- Pre-assembled parts for faster installation
- High load ratings for regions with heavy snow or wind requirements

**Ease of Use:** IronRidge systems are renowned for their user-friendly designs, with fewer parts and clear installation guides.

#### SnapNrack Racking System

**Design:** SnapNrack offers a range of systems for different roof types and ground-mount setups. Their systems are known for their innovative snap-in features, which eliminate the need for bolts and simplify installation.

**Material Quality:** Made from high-quality materials like aluminum and stainless steel, though some users report issues with long-term performance in extreme environments compared to IronRidge.

#### **Key Features:**

- Integrated wire management for a clean finish
- Fasteners and snap-in parts reduce installation time
- Versatility for a wide range of solar panel configurations

**Ease of Use:** SnapNrack is praised for its modular system, allowing installers to customize the setup without excessive modifications.

## Why Choose High-Quality Racking Systems like IronRidge?

### 1. Longevity and Durability

Solar racking must last 25+ years, matching or exceeding the lifespan of solar panels. A high-quality system like IronRidge ensures structural integrity over time, even in harsh weather conditions.

### 2. Performance and Efficiency

Securely mounted panels maintain their optimal angle and orientation, maximizing energy generation. Poor racking can lead to misalignment or movement, reducing system performance.

### 3. Safety

A sturdy system prevents accidents, such as panels detaching during strong winds or damaging the property.

### 4. Cost-Effectiveness

Investing in a premium system like IronRidge reduces the need for repairs or replacements, saving money over time.

### 5. Aesthetic Appeal

IronRidge's sleek designs provide a clean look, enhancing property value and curb appeal.

### 6. Ease of Installation

Streamlined designs reduce labor costs and time, particularly for professional installers.

## Why IronRidge Stands Out

IronRidge systems, including the Hug Mount, offer unmatched durability, user-friendly features, and superior engineering. While SnapNRack provides competitive alternatives with modular designs, IronRidge consistently delivers top-tier quality and reliability, making it a preferred choice for professional installers and homeowners who want peace of mind and a long-lasting investment.

A good installation partner will also be vendor agnostic, and although IronRidge is the best system for most homeowners, [S-5! is also a great solution for homeowners with a metal roof.](#) Whether you have standing seam and do not wish the roof to be penetrated, or corrugated steel, the S-5! is the best possible product.

S-5! metal roof attachments are industry-leading solutions designed to securely and efficiently mount solar panels and other equipment onto metal roofs without penetrating the roof surface. These attachments utilize a patented clamping system that attaches directly to standing seams or trapezoidal profiles, ensuring a watertight and damage-free installation.

What makes S-5! the best solution for installing solar on metal roofs is their versatility, durability, and ease of installation. The clamps are engineered for compatibility with various metal roof profiles and are made from high-quality materials like aluminum and stainless steel, ensuring long-term performance in harsh weather conditions. Additionally, their non-penetrating design preserves the roof's structural integrity, eliminates potential leaks, and complies with building codes and warranties.

S-5!'s innovative design and proven reliability make it the go-to choice for professionals seeking a sustainable and efficient solar mounting solution for metal roofs.

In short, the racking and mounting portion of the system is an area that most solar homeowners overlook. Paying attention and asking about racking is key to understanding the standard of installation your solar installation partner has. Look for quality products that are built to last.

# Solar Services

While the products that make up your solar array are important to ensuring the long-term success of your investment, the level of service you receive from the company you choose to partner with is as, if not more, important. These services include permitting and net-metering applications, property inspections (before and after installation), monitoring, and cleaning services

## Permitting and NM Applications

Permitting and Net-Metering are two of the most critical steps in the journey of going solar, both because they are required by almost every authority-having-jurisdiction (AHJ) and utility, respectively, and because they are the two steps that are most out of the control of the customer and solar company. This means that it is essential to choose a solar partner that is familiar with working with your AHJ and utility and understands their processes, timelines, and expectations at the highest level. Permitting usually involves diligently preparing accurate plansets, obtaining engineering stamps when necessary, and continued follow-up with the AHJ- even with this, timelines can typically span 2-4 weeks, if not more, so it is vital that the process is handled well from the beginning to minimize back-end changes during the permitting stage. When changes are required by the AHJ, it is again very important that the company you choose is able to quickly modify the system to appease the AHJ while also keeping the goals of your system at the forefront. Similarly, every utility handles the net-metering and interconnection process differently, and a company who is familiar with your utility's policies will ensure that your meter is swapped as soon as possible after installation so that you're receiving proper credit for your solar production at the earliest date.

## Property Inspections

The advent of gps, computer rendering, and modern design tools have made the remote solar design process quite robust in recent years. However, every home is unique and there is still only so much information that can be gathered without a visit to your home. For this reason, a thorough Site Survey of your home after you choose your solar system will ensure the following: that your designed system will fit on your roof (or in your yard in the case of a ground mount system), that said system will adhere to all building and electrical codes applicable, and that the structural and electrical infrastructure at your home are adequate to handle the interconnection of the solar system without any necessary upgrades or modifications. Similarly, most AHJs and some utilities require post-installation Inspections after the solar is installed to make sure that the permitted design was followed correctly and that all codes have been followed. Solar is still very new to a lot of these parties, and having a solar partner that is able to walk inspectors through solar installations correctly and show them that all standards have been properly adhered to will again make sure that your system is approved and paying you back in the shortest amount of time.

### Monitoring

With solar being a long-term (30+ year) investment, monitoring of the system after installation ensures the rapid diagnosis of any potential issues that arise with the solar array. While the majority of installations are essentially turn-key, the maintenance may not be. Products do occasionally fail, and in this case it is vital that your solar partner (and any warranty partners involved) are able to communicate seamlessly when issues do come up and fix the issue at hand in a timely fashion. Hands-on monitoring of the solar array limits down time and saves you money, so it is important to understand what level of monitoring is included with your solar installation partner.

### Cleaning Services

Over time, your solar array may accumulate dirt, dust, pollen, and other particles that can hinder the performance of your system, especially in wooded areas. The degree to which you may need to clean your array can vary wildly based on where you live. For example, customers with little to no shade most likely will never need to clean the solar panels. However, solar homeowners that live in heavily wooded areas or high pollen areas may find it beneficial. While this is often minor, over the life of the solar system it is important to have a solar partner that can provide cleaning services to alleviate these issues. The right partner could also assist you with direction on how to manage annual cleanings of the solar panels yourself.



# Operations and Maintenance

Solar ownership with the right installation partner should be stress-free for you as a homeowner. But at the end of the day, it is you, the homeowner, who is making the investment into a more secure energy future, and gaining a piece of energy equity. The more you know about how your system works and what can go wrong, the more confident you can be in your solar array. Most solar installations require absolutely NO routine maintenance, which is fantastic. However, sometimes issues do come up. Some of the most common are connectivity issues, an out-of-the-box part that is defective, animal damage, and issues with the elements such as snow or pollen. Before we continue though, DO NOT WORRY! Even these more “common” issues are rare, and usually are a simple fix.

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## Connectivity Issues

These are most common when Wi-Fi goes out or is changed, or a cell card runs out of life. Typically, an email alert will go to your solar installer and they can begin a remote diagnosis right away. You can identify these issues by going into your monitoring tool by clicking on the error message and seeing that the error is related to data or connectivity. The vast majority of these issues can be fixed with a simple system power cycle or a reboot: basically shutting it off and turning it back on. For the stubborn connectivity issues, some can be fixed by pushing a remote firmware update or making a simple swap of a part, all of which are covered under most solar company warranties. And the best part about these issues is that they do NOT affect production! It is only your ability to read that data that is compromised. This is definitely the most common maintenance issue, and is very minor.

## Defective Product

The vast majority of the solar array is covered over warranty, both through the manufacturer and the solar installation company (if you pick the right one!). So when a bad part comes along, it is usually a quick and easy fix. This issues are usually easy to observe in the monitoring tool, and often will identify and isolate the exact component that is causing the issue. A ticket is then created, remote troubleshooting begins, and if that does not resolve the issue, and on-site visit is scheduled. It is at this point that a maintenance replacement request is submitted, most commonly referred to as an RMA. This should require almost no input from you the homeowner, assuming you went with the right installation partner. The monitoring tools are now so accurate, that a knowledgeable service technician can even sometimes skip the need for a site visit and go straight to the RMA! Solar has come a long way in the past two decades, and maintenance is now easier than ever. The products that most reputable installers choose also have a less than 1% failure rate, so the chances are you will never have to worry about this process!



### Animal Damage

This maintenance challenge is most relevant for homeowners who are very near trees, or homeowners who have had animal issues in the past. For this, the best way to protect your investment is to add critter guard, which is essentially a metal netting around the gaps between the solar panels and your roof, which is only 2-3 inches. This is an easy, cost-effective way to deter this issue and to do some preventative maintenance. Be sure to ask your solar installation partner about this if it is relevant to your situation. It is important to note, most warranties do not cover critter damage, and homeowners could end replacing parts on their own dime. So it is always good to be preventative in this situation!

### The Elements

Snow, rain, pollen cloud, and tree coverage will affect a solar array's performance. So do not be worried if you see your system is having an off day or two! There is no required maintenance to prevent or reverse issues with production from the elements, however some homeowners purchase products to remove snow, clean the panels, and trim trees if they become issues. When in doubt, always reach out to your solar installer. However, a good installation partner will have a solar design tool that accounts for the elements, and you will know what sort of production to expect on a yearly and monthly basis. The day to day is less important when monitoring the system's performance, it is always best to review by quarters or even annually, to account for any unusual weather patterns.

In conclusion, operations and maintenance should not be a major concern IF the solar installation was done correctly by experienced professionals. Picking the right partner up front will both limit your issues down the road and set you up for a prompt response and an easy fix if there are issues.

# Top 10 Questions Every Homeowner Should Ask Their Solar Contractor

## Does my home qualify?

For the vast majority of Americans who live in single family homes, your property qualifies for solar. Project Sunroof from Google determined that over 84% of US homes were viable for solar. This was based on available roof space and connection to the grid. Electrical and building codes have nationally recognized standards for solar, and the North American Board of Certified Energy Practitioners, or NABCEP, provides guidance on what your home needs to be suitable for solar. However, just because your home is physically fit for solar doesn't mean that solar will make sense for you. Some homes require roofing replacements, main service panel upgrades, have different requirements from homeowners associations, are in areas where local jurisdictions can block solar projects by denying permits, and so on. The best way to determine if your home is really qualified and to find out what your local requirements are is to contact a solar expert. Make sure your solar installation partner is willing to help you through the qualifying journey, and isn't going to put all the burden on you.

## What is my Price Per Watt (PPW)?

This is a key aspect of comparing solar quotes. The Price Per Watt (PPW) is an industry standard way of measuring the dollar value against the wattage, or power capacity, of the solar array. The question "what is my price per watt?" is so important to ask any potential solar contractor because it ensures that you are fairly comparing system size and value. If one solar contractor proposes 28 solar panels and another proposes 20, you could be thinking that the system with less panels might be cheaper and a better value. But if the solar panels in the 28 panel design are 345 watts each, and the panels in the 20 panel design are 400 watts each, you could actually be comparing two solar systems with the same wattage size. By getting the price per watt, you are holding solar contractors accountable to a universal measure. That way you can focus on what is important: your total cost to go solar versus your total electric production in kWhs.



### What is included with my solar installation?

Understanding the different aspects of a successful solar installation is key to getting the most out of this question. When you are discussing a solar proposal, make sure to find out who is responsible for the net metering agreement, the permitting, any back and forth with relevant homeowners associations, etc. You do not want to be stuck with solar on your roof and a local AHJ (Authority Having Jurisdiction) telling you that your home is in violation. Fees can be applied, and some homeowners may even be responsible for removing the solar panels. Be sure to fully understand the warranties and what they cover as well, you do not want to be stuck paying for a service call every time someone comes out to the property to inspect your solar array. You want to make sure you have a solar installation partner who is going to give you a direct price for all relevant services. This includes the initiation site inspection, permitting and net metering, solar installation, maintenance included in the warranty, and any required follow up inspections. This will help you avoid being surprised by hidden costs, or even worse, in violation of a local office's codes.

### Is my contract price the final price?

This goes hand-in-hand with the question regarding the services included with your solar installation. Be sure to read your contract thoroughly and make sure you understand who is responsible for the relevant paperwork, and what happens if something goes wrong (which should be rare with the right solar installation partner). Oftentimes hidden permit fees, net metering fees, and change orders come up and add costs to the solar project after the homeowner already signs up and commits. These incremental price increases can really add up and eat into the savings of a solar installation.

### What incentives are available to me?

Incentives are an important part of the home solar project. Most homeowners who have taxable income are eligible for the Investment Tax Credit (ITC). This incentive is in fact a direct credit, and not a deduction, so you get the full dollar amount you qualify for. It does not just simply lower your tax liability. In many states, there are also incentives such as net metering, which is an agreement between you and your utility company. This is typically governed at the state level, and allows you to sell back excess energy you produce from your solar array to the utility. This helps reduce the cost of a solar installation by avoiding the need for a battery, and also helps increase the payback of the solar panels. Some states and cities also have tax credits, rebates, and deductions that homeowners can qualify for to further increase solar panel adoption. For example, in South Carolina, a solar homeowner can get an additional 25% off of their state income taxes by going solar! Be careful when speaking to solar contractors about incentives. Some solar installers have been accused of misleading tactics, such as showing the after incentive pricing without any conversation about whether or not you qualify. It is important to work with a partner who can help you understand these incentives, and one that recommends you to check with a tax professional. You want a partner, not someone who is going to simply install solar panels and push the burden of understanding all the benefits onto you.





### What are my payment options?

There are three main ways homeowners switch to solar: financing the system through a loan, entering into a lease agreement with a solar company, or paying cash up front for the installation. All three of these options have their pros and cons. When speaking to a solar contractor, it is important to discuss the impact of tax credits, any available loan options, and what is required for each option. If the solar contractor is pushing only one option, be weary of the intent. What is best for a cookie cutter approach may not be right for you. Let's dive into the three financing options.

*When you finance a system through an installer that has access to solar-specific loan products, there are tons of benefits. A typical homeowner that signs up for financing doesn't see a payment due until after their home solar system is already operational. When the payments start, our average solar homeowner's payment is actually less than what the system is saving them on their electric bill. This means that they are paying less from day one, and are always in the green! And the best part? There is no upfront cost to you! Therefore you see an infinite return, as you are saving money immediately. There are also three other features of the loan worth noting that make these loans more attractive to solar buyers than traditional financing options. First, the loan itself is often tied to the value of the panels, and is not a second mortgage. This means that you still have the value of your home to borrow against in case you need additional funds for a rainy day. Second, the loans are flexible and allow you to pay on the amount of the loan less the federal tax credit amount from day one. (Example of a \$30,000 system: payment is based on Loan Value \$30,000 - Tax Credit Value \$9,000 or \$21,000) This allows you to start by making low payments, and as long as you take the value of your tax credit and apply it to the loan, your payments never change. However, if you choose to take that tax credit and pay off other debt, go on vacation, buy a new car, or really anything else, you do not get penalized for doing so. You simply start paying on the full amount of the loan. Third, there is no penalty for early payment and you have an unlimited amount of reamortizations to lower your monthly payment. So even if you can't get the full value of the tax credits available to you in year one, you can always apply them down the road. These loans are competitive because banks understand that people pay their electric bills, and know that it is actually cheaper to go solar. So the risk is very low for both parties!*

*When you lease, you get to simply sign up and (usually) pay a lower rate for your electricity. The solar company then installs a solar panel system that they own on your property. These contracts usually have built in rate hikes for you and some agreements even have the option to buy the system at the end of the program. However, when you lease, you often do not get to experience the full value of the tax credits available. This incentive is usually shared with the homeowner instead of the homeowner seeing all the benefits. This situation can be beneficial for the homeowner, but not quite as great as financing your own system and owning it.*

*Cash is another great option, and of course the best one in terms of return on investment. When homeowners pay for the solar system costs upfront, they enjoy savings while avoiding interest payments. A typical system will pay for itself before working through even a third of the solar panel's warranty. However, this option does require a heavy investment upfront, which many homeowners are unable to swing. That is why the most popular option remains the solar specific loans that have helped millions of Americans enjoy the benefits of home solar.*

### Who is my point of contact during and after the project?

This is important to know when speaking to a potential contracting partner. Often you'll find that the person selling to you is not going to be responsible for seeing the project through. This can cause an issue with over promising and under delivering. You don't want to spend your time on the phone fighting with large contractors, having to explain your situation to multiple departments on a 1-800 line. Our staff members are all part owners, and will stick with you from day one through the entire installation. This ensures accountability and a successful project. That is not to say mistakes don't happen, but with this model, it is a lot smoother getting to a satisfactory conclusion. Accountability matters for any home improvement, but especially for a home solar installation that has a useful life of over 30 years!

### What happens if I have an issue after installation?

Operations and maintenance is important when considering installing a solar array. The home solar array itself does not actually require any on-going maintenance. Because the panels have no moving parts, fuel or anything that requires regular attention, they simply sit up on your roof or in your yard and make you money. Cleaning the panels is sometimes suggested, depending on the area in which you live, and it can boost production over time, but it is not something that is mandatory. However, that is not to say there are never any issues with solar arrays. Sometimes installations can experience product failures, installation errors, animal damage or human tampering, and extreme weather can all damage the solar system or hurt production. When discussing this with your contractor, make sure to ask about what actually happens when there is a problem. You will want to understand what is covered by warranties, both parts and labor, and what fees are associated with a maintenance call. Product defects and installation errors should be rare with a qualified installer. They should always be promptly responded to, the issue should be clearly communicated, and smoothly resolved. With the right partner, this is possible!

### What exact products (panel brand, solar inverter brand) are being installed on my home?

This question is extremely important to ask your prospective contractor. Often you'll find that contractors do not actually cover specific products but instead will try to sell you on total production and the system as a whole. This can leave the door open for inferior products to be installed on your home, giving you less valuable warranties and performance for your money. You want to make sure your solar panels are tier one monocrystalline, you understand the pros and cons of microinverters vs string inverters, and you understand the warranties included. You want to work with a partner who is not tied to any one brand or product, and that does not push a one-size-fits-all solution. That is a major benefit of working with Gold Path Solar, we can personalize your system because we work with multiple supply vendors and never are exclusive. We won't just sell you the solar panels that are collecting the most dust in the warehouse!

### Is there a referral program?

Referral programs can be a great way to help lower your cost to go solar through earned perks or extra income. Some solar referral programs have incentives that are so good, they can even cover months worth of payments for your solar array. When discussing the referral program, be sure to consider if the program is one-sided, what kind of participation is required, and how often people participate. For example, a program that gives both you and the new potential solar home owner an incentive or perk increases participation. This type of program has something for everyone, and is proven to be the best way to create a solar win-win!



# Home Solar Comparison Guide

Making the decision to go solar is one of the best things you can do for your home, bank account, community and environment. However, picking the right isn't always as straightforward as it should be. Different products, services, and financing options can complicate the buying process and make it hard to compare options on a level playing field. Being able to evaluate bids is a crucial part of a successful home solar installation. That's why we've created this comprehensive shopping tool to allow you to compare apples to apples when looking at bids.

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It's not all about cost, but it is important to know that you are getting a fair price for what you are buying. First, you'll want to compare system sizes with total kWh electric output. Next be sure to ask about what services are offered. You don't want to find out after installation that the installer does not include submitting of the net metering agreement. Finally, you will want to ask about the warranties offered, not just the solar panels and other product warranties but labor too. It is also important to look for red flags. For example: It's also important to note that if the system wattage (system size) is the same from one company to the next, and each company is using the same roof face, there should be no major difference in total electric output. If you have multiple bids and one company is promising to produce more electricity with the same sized system, you'll want to dig in further and ask additional questions. As always, if you have any questions or would like to review your quotes with us, your Solar Advocate is ready to help you find & navigate your brightest path forward!

Company	Gold Path Solar		
System Wattage			
Finance Price			
Finance Terms			
Finance PPW			
Cash Price			
Cash PPW			
Panel			
Panel Warranty			
Inverter			
Inverter Warranty			
Backup Features	Enphase		
Company Warranty			
Additional Protection			
Point Of Contact	Solar Advocate		

**Quoted Resources**

[Department of Energy](#)

[Internal Revenue Service](#)

[National Renewable Energy Laboratory](#)

[Solar Energy Industry Association](#)

[Federal Reserve Bank of St. Louis Economic Research](#)

[Wall Street Journal](#)

