solar-to-the-people.com
619-798-8038
info@solar-to-the-people.com

SOLAR TO THE PEOPLE'S

GUIDE TO HOME SOLAR

The most important things to know when considering solar

SOLAR TO THE PEOPLE'S **GUIDE TO HOME SOLAR**

INTRODUCTION: WELCOME TO SOLAR TO THE PEOPLE'S GUIDE TO HOME SOLAR

Solar seems so simple, yet many homeowners quickly learn that the process of going solar can be more complicated than they thought. We've put together this simple guide to help you understand the basics of going solar and to answer some of the most frequently asked questions. Our site, solar-to-the-people.com has additional explanations and goes into detail on these topics, and many others – but this document is really all you need to get started.

- **How Does this Guide Work?**
  We've structured this guide so you can quickly dive into any of the main sections and learn what you need – we've covered how to evaluate if your home is appropriate for solar, what components make up a solar system, how to tell if solar make sense financially, what to expect in terms of costs and savings, how to find and evaluate installers, how to compare equipment, and frequently asked questions not covered in the other sections.

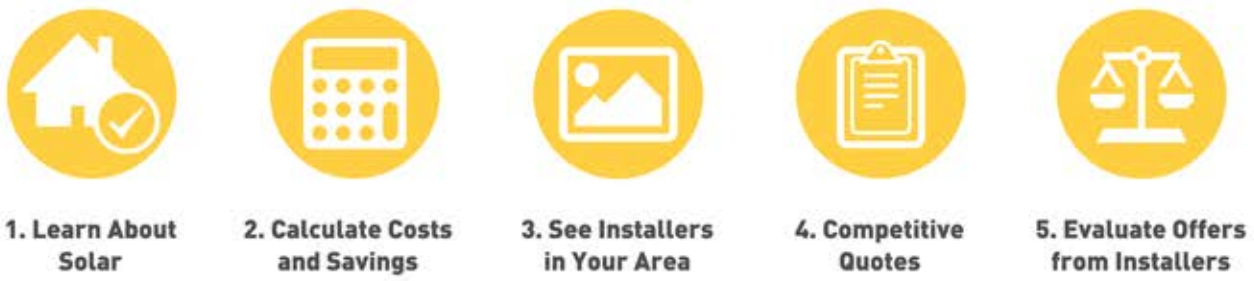
- **How Does Solar to the People Work?**
  Solar to the People's mission is to help educate homeowners about solar, to make the process of shopping for solar simple, and to help homeowners get the best price for solar possible. We do this through our three roles:

Solar to the People's mission is to help educate homeowners about solar, to make the process of shopping for solar simple, and to help homeowners get the best price for solar possible. We do this through our three roles:

1 | We provide **independent information about solar** and **savings/cost calculators** to answer the many questions homeowners usually have when they begin the solar research process.

2 | We help homeowners receive multiple solar quotes from a **network of pre-screened, high quality installers.** We spend a lot of time vetting installers, so you don't have to.

3 | We provide homeowners with **tools to evaluate offers** from solar installers and **choose the best bid.**



IS YOUR HOME **APPROPRIATE FOR SOLAR?**

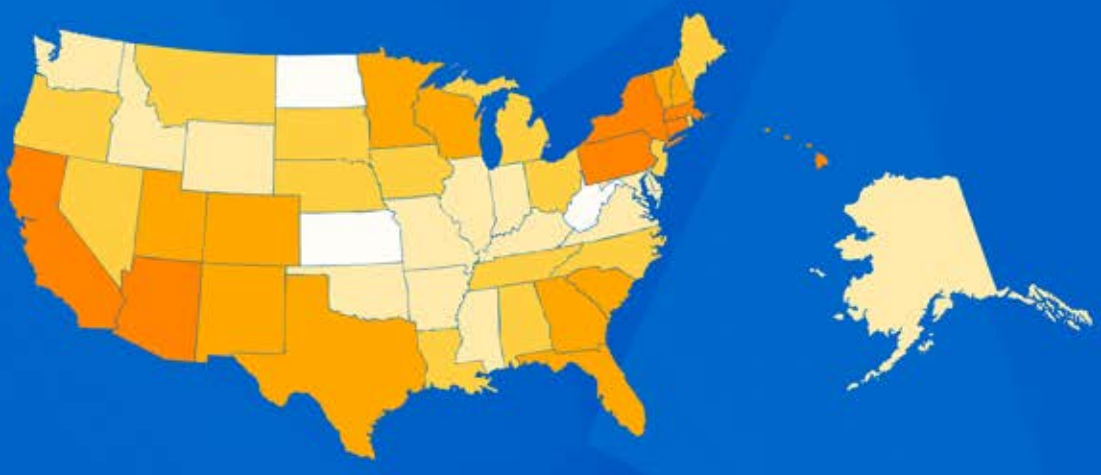
When considering solar, one of the most common things that homeowners want to know is whether solar power is actually a viable option. You can easily figure this out by answering the following three questions.

1 WHERE DO **YOU LIVE?**

Many people think how much sun their house gets is the ultimate factor in determining whether they should install solar. However, solar makes the most sense in regions with a high cost of electricity - not necessarily areas that have the most sun. The available rebates and credits in your area also play a big role in determining whether solar makes financial sense.

Homeowners in most states will benefit from switching to solar, however the savings will vary from region to region. For example, in colder states like New York, homeowners may save more money by switching to solar than those in sunnier areas, like Arizona. We explain this in detail in the points below.

We rate the states in the below image from good to bad as far as potential savings off your power bill are concerned.



Estimated savings from solar for average-sized home over 20years

2 HOW MUCH IS YOUR POWER BILL?

Solar is ideal for homeowners who spend a lot on their monthly power bill – some homes consume a lot more power than others.

The minimum power bill for which solar makes sense varies depending on where you live, due in large part to the credits you can receive. In order to see worthwhile savings, your monthly electric bill should be at least $50 in most areas. With a bill of $100 or greater, the decision to go solar is a no-brainer.

3 WHAT ABOUT YOUR ROOF?

Since the solar panels will likely be sitting on your roof, the direction, shading and age of your roof all need to be considered before going solar.

- **Roof shading:** Any amount of shade on your roof, whether it's from a chimney, tree, building, or architectural feature, will impact the amount of energy your panels produce. In general, you want a roof that is free from shade producing objects over the area where your panels would be installed.
- **Direction:** An ideal roof would be facing south to take full advantage of the sunlight throughout the day, although solar can be viable if your roof faces another direction. Panels on south-facing roofs will produce more power than those on roofs that face north, for example.
- **Roof age:** Before installing solar, you need to consider the age of your roof. Once the panels are installed, you don't want to have to take them off in a few years to replace your roof. If the roof will need to be redone in within 8 years, it's best to have that done before putting panels on.
- **Roof type:** The type of roof you have is not a major factor in deciding whether to get solar. Installers work with all different types of roofs from tar shingles to Spanish tiles, and a quality company will be able to work with whatever material your roof is made out of.
- **Ground mounts:** For homeowners who don't want solar on their roof, most reputable installers will also be able to do ground-mounted installations.

1 & 2: OBSTACLES & SHADE
3: ROOF AGE
4: ROOF TYPE

WHAT ARE THE PARTS OF A **HOME SOLAR SYSTEM?**

Solar systems are made up of two main parts: the panels and the inverter, and several peripheral parts:

1 SOLAR SYSTEM **PARTS**

- **Panels** – The panels themselves have no moving parts - they just sit there absorbing sunlight and producing power.
- **Inverters** – Inverters are what actually convert the electricity produced by the panels into a useable format. Solar panels produce direct current (DC) energy, while our homes and appliances run on alternating current (AC) energy – the inverter makes the switch.
- **Monitoring system** (not shown) – Monitoring systems are an important part of your solar system, because they allow you to see how your panels are running and whether there are any problems.
- **Racking system** (not shown) – This is how the panels are attached to your roof (the "feet" of the panels).
- **Electrical panel** – while not a part of the solar system, the electrical panel IS a very important component. It's what distributes power through your house and feeds excess power from your panels back into the grid. If you have an old house, you will need to evaluate whether your electrical panel is sufficiently sized to handle a solar system. Frequently homeowners with older homes need to upgrade their electrical panels to handle home solar. All good installers should inquire about the size of the electrical panel when inspecting your home before solar is installed.

1: PANELS
2: INVERTER
3: ELECTRICAL PANEL

SOLAR – THE FINANCIAL DETAILS

1 HOW MUCH CAN I SAVE?

By switching to solar, an average homeowner can expect to save **$10,000 - $50,000** or more over the course of **20 years**, depending on the size of your power bill.

This is another question that really depends on the size of your home, the area you live in and if you finance your panels or pay with cash. However, most homeowners DO save with solar. What determines the savings:

- **How much you would pay for electricity from your utility over the next 20 years**
- **How much it costs to buy, loan or lease panels.**

Your savings are determined by the difference between these two numbers (so your savings is equal to: your cost of power over 20 years, minus the cost of the solar system). The basic savings you can expect depend in large part on how you decide to finance your system. For a more in-depth explanation of each of these types of financing options, please refer to the "How Should I Pay for Solar" section below.

- **Cash purchase:** The total savings are what you would have paid in electric bills over the lifetime of the system minus the cost of the system, AND any credits the utility sends you through net metering
- **Loan:** The total savings are what you would have paid in electric bills over the lifetime of the system minus the cost of loan payments, AND any credits the utility sends you through net metering
- **Lease:** The total savings are what you would have paid in electric bills over the lifetime of the lease, minus the cost of the lease.
- **Power Purchase Agreement:** The total savings are what you would have paid for power from the utility over the course of the contract versus the amount you would pay for power produced by the solar panels.

2 HOW MUCH DOES IT COST?

A reasonable estimate for an average homeowner purchasing solar is roughly **$15,000-$25,000.** However, not everyone can or wants to pay with cash. There are a wide variety of $0-down options available from loans to leases to power purchase agreements.

This is one of the most common questions out there – and unfortunately it's not simple to answer. There's a lot of variety in the types of incentives and rebates available to homeowners depending on where they live. Every house consumes a different amount of energy and no one has the exact same roof.
For these reasons, the only way to get an accurate estimate on the cost of solar for your home is to get quotes from solar installers.

3 WHAT TAX CREDITS, REBATES AND OTHER PROGRAMS ARE AVAILABLE?

- **Federal -** No matter where you live, if you purchase solar with cash or a loan, you get the Federal tax credit, also called the Investment Tax Credit. This tax credit is for 30% of the cost of a solar installation – so it effectively reduces your solar purchase price by 30%.
  This credit is available for solar installations installed before 2020, at which point new solar installations will receive a lower credit.

- **State, local and utility rebates and tax credits** – This varies region by region, but most states and utilities have some kind of rebates or tax credits, and these can be significant. To see which incentives you may qualify for in your area, visit our incentive page: solar-to-the-people.com/solar-tax-credits-incentives

- **Net metering – selling your excess power back to the grid**
  Net metering allows homeowners to receive credits from the utility for the extra power their panels produce. If the homeowner doesn't use the extra credits, they can be exchanged for money from the utility.
  While panels will produce electricity all year, they produce the most electricity during the long days of summer when there is a lot of strong sun.
  On these days, they usually produce a lot more power than a homeowner consumes.

4 HOW SHOULD I PAY FOR SOLAR?

For a long time, the only way to pay for a solar system was to pay for it completely in cash. Now that banks are frequently financing solar, homeowners have a wide variety of options to choose from when deciding how to pay for their solar system. Here are the options:

- **Cash** – You purchase the system outright with cash. You own the system, and keep all tax credits.
- **Solar loan** – You get a loan to pay for the system, which you pay back to the bank each month (like a mortgage). You own the system, and keep all tax credits. Many banks and credit unions now offer solar loans.
- **PACE financing** – This is a loan for solar that is essentially provided by your city. The payments are then added to your property taxes until the loan is paid off. You own the system and keep all tax credits.
- **Home equity loan** – You can use regular home equity loans to pay for solar panels, just like any other home improvement. You own the system, and keep all tax credits.
- **Solar Lease** – You lease the panels from the solar company and pay a monthly bill to use them (like leasing a car). The solar company maintains the system over the duration of the contract (usually 20 years). You do not own the system, and do not receive the tax credits. Solar leases are offered by solar financing companies and installers.
- **Power Purchase Agreement (PPA)** – You enter into a contract with a solar company where they install a solar system which they own, on your roof, then you agree to purchase the electricity they produce at a set rate over the duration of the contract. The solar company maintains the system over the duration of the contract (usually 20 years). You do not own the system, and do not own the tax credits. PPAs are offered by solar financing companies and installers, depending on the area you are in.

	Cash Purchase	Solar Loan	PACE Financing	Home Equity Loan	Solar Lease	Power Purchase Agreeement (PPA)
Money down required?	Full price of solar system	$0 down options	$0 down options	$0 down options	$0 down options	$0 down options
Payments	Up front once	Monthly set rate	Monthly set rate (added to property tax)	Monthly set rate	Monthly set rate, rate increases once per year	Set rate for power produced by panels, price for power increases once per year
System Ownership	Homeowner	Homeowner	Homeowner	Homeowner	Installer or finance company	Installer or finance company
System Maintenance	Homeowner	Homeowner	Homeowner	Homeowner	Installer or finance company	Installer or finance company
Tax Credit Ownership	Homeowner	Homeowner	Homeowner	Homeowner	Installer or finance company	Installer or finance company
Length (years)	Not applicable	10,15,20 years	10,15,20 years	10,15,20 years	15,20 years	15,20 years

I WANT TO GO SOLAR – WHAT **ARE THE NEXT STEPS?**

1 HOW DO I FIND **GOOD SOLAR INSTALLERS?**

- **Solar to the People** is a third party solar provider marketplace. We aim to link consumers with the best solar installers in their community.

  The installers in our network are held to high professional standards for their installations, customer service and prices. Installers can't just call us up and join the network, they need to come highly recommended through our industry contacts and maintain an excellent reputation.

- **Google**

  You can always use your search engine of choice to find installers in your area, but beware of paid advertising and fictional reviews on many of the review sites. There's no way to know if the installers you find on a search engine are actually quality companies, or if they're just paying a lot to show up in your search results.

- **Recommendations**

  Word of mouth can be a great way to learn of installers in your area. If your neighbor was happy with their installation, you should expect the same results.

2 HOW DO I COMPARE SOLAR INSTALLERS?

Solar is a big purchase and surprisingly, installer quality varies widely among different companies. This is where Solar to the People comes in – we review installers in different regions based on the criteria below, and only recommend the best installers we can find. The installers in our network are the same ones we would trust to install solar on our own homes. Even though we work with the best, there can still be discrepancies among the companies.

So, **how do you evaluate a solar installer?**
In order to compare them, you should look at the following:

- **Experience, reputation and customer service**

The solar installer you choose should have an excellent reputation among the homeowners they've worked with. If they have a reputation for hard sales tactics and not following up on homeowner questions, we don't recommend working with them.
Don't hesitate to ask the salesperson for the name and numbers of homeowners they've worked with to understand what their experience was like. If the salesperson's customer service consists of just pushing to get a sale done, it's likely that their installation team will be focused on quantity over quality as well. Attentiveness to customer service is a huge indicator of installer quality. Websites like Yelp can be helpful when trying to evaluate the quality of an installer's work and customer service, but one of the issues with these sites is that it's difficult to determine which reviews are real and which are fake.

- **Cost per watt**

How much does the company charge for the system on a cost per watt basis? Cost per watt is important because it allows you to evaluate how much you're paying for a unit of energy production (one watt).
This allows you to compare prices among multiple installers to understand their actual pricing, since installers rarely all recommend the exact same size system (for a number of different reasons). System sizes are usually quoted in kilowatts (kW – one thousand watts), but for some reason or another, installers like to quote prices in cost / watt. For example, if one installer is recommending a 7.125 kW system for $26,000, and another installer is recommending a 7.75 kW system for $27,000, the 7.75 kW system is actually lower on a per-watt basis: $3.65 for the 7.125 kW system vs. $3.48 for a 7.75 kW system.

How do I calculate cost per watt?

To calculate cost per watt, if it isn't included in an installer proposal, just follow this equation:
Cost per watt = total price of system / system size in kW x 1,000
Example: $27,000 / 7.75 / 1,000 = $3.48 per watt

- **Warranties, licenses and insurance:**

Warranties:

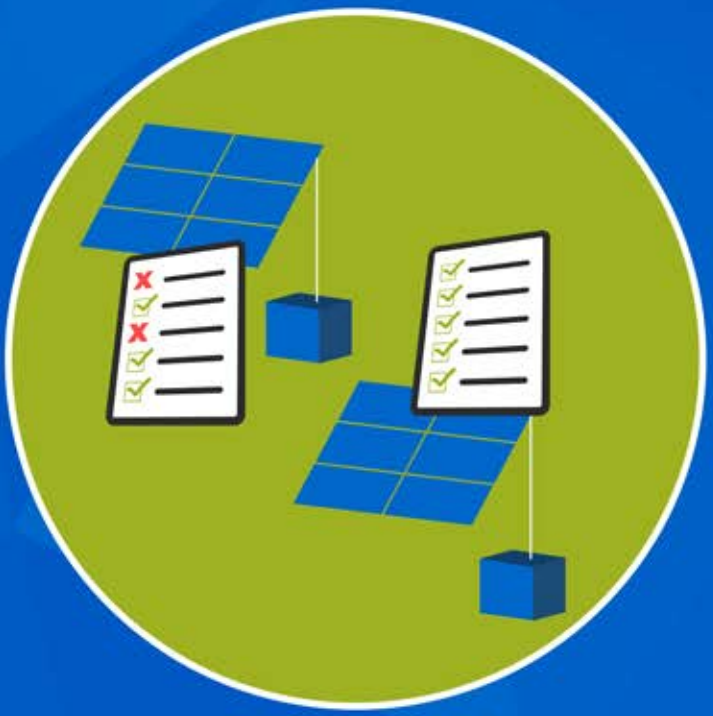
Solar system components rarely break, but it's good to know what warranties apply in the rare chance something happens to your system. You want to know the warranties on equipment AND on the work done on your roof.
For systems purchased through cash or loans, manufacturers will warranty their components for 20 or more years, and installers will warranty any issues that arise with your roof. For leases and PPAs, the solar company that owns the equipment warranties the entire system and any issues that arise with your roof for 20 or more years.

Licenses & Insurance

When choosing a solar company, you want an installer who is certified by the North American Board of Certified Energy Practitioners (NABCEP), which is the highest level of solar certification.
They should be in excellent standing with the Better Business Bureau and have the appropriate licenses (general contracting, electricial, home improvement) and insurance coverage for their workers.

2 HOW DO I CHOOSE PANELS AND INVERTERS?

Aside from your cost per watt (best evaluated on a system level), what you want to pay attention to are manufacturer quality/reliability and associated warranties for both panels and inverters. We recommend going with mid to high grade panels and inverters, and evaluating company stability when making your selection. Warranties on both panels and inverters should be at least 20 years.



For panels the biggest thing to look out for is the terms of the production guarantee. Panels don't have any moving parts, so don't "break" in a traditional sense, but they do become less efficient over time. A production guarantee warranties that panels will produce at a certain efficiency over the life of the panels, or the manufacturer will replace them – for example, after 20 years, the efficiency of the panels will be 75% of their original level.

Inverters can indeed break in the traditional sense, so the most important part of an inverter warranty is the full replacement of a broken inverter by the manufacturer. 20 years is a reasonable time period for an inverter warranty.

FREQUENTLY ASKED QUESTIONS:

- **How long do solar systems last?**
  On average, soalr systems should last at least 20-25 years, and be covered by manufacturers warranties during that time. See our section above on warranties for details on how long panels and inverters should last.

- **How are solar systems sized?**
  Systems are typically sized by installers to zero out a home's electric bill over the year.

- **Why should I buy panels now?**
  Like any technology, solar is improving each year. However, solar panels today are already working at high level efficiencies to the point where the money you will save by switching to solar is significant enough to invest in this technology today, rather than wait ten years and continue to pay increased electric bills in the meantime.

- **Is it true I can sell power back to my utility?**
  Yes, this is called "net metering", and we cover it above in the "Net metering – selling your excess power back to the utility company" section

- **What if something breaks, how do I get it fixed?**
  Solar systems have two components – the panels, and an inverter. Panels rarely "break", but they can see lower efficiency over time. Inverters may break, but are very easy to fix. If you purchase your system, both of these components should be covered by manufacturer's warranties for at least 20 years – including full replacement of the components in case of failure.
  If you decide on a lease or PPA, the installer will be responsible for maintenance of the panels if something goes wrong. You should ask your installer what their policies are for maintenance of the panels or inverters in the event that something happens to either.

- **How do I know if I'll be getting enough power?**
  Solar systems should be sized to match the energy requirements of your home. In most cases this means the system's energy output will match (or come close) your current energy consumption needs.

- **What if I want to sell my house?**
  People buy and sell homes regularly with solar panels now. This is where it's much easier if you've used a loan or purchased with cash versus a entered into lease or power purchase agreement (PPA). If the system is owned, you simply add the value of the panels onto the purchase price of the house. If the system is leased or you've entered into a PPA, you will have to convince the buyer to take the payments over, or pay a cancellation fee (which is generally quite expensive).

- **What if you don't own your home?**
  If not, don't worry - community solar might be for you! Community solar is designed for apartment dwellers who don't have roof-space for solar. A community solar company builds a solar installation somewhere in the same area (usually a large ground-mounted installation), and you can buy a share in the solar installation. The same benefits accrue to you as accrue to a homeowner who has installed solar.

TO LEARN MORE ABOUT RESIDENTIAL SOLAR

visit us at
solar-to-the-people.com

call us at
619-798-8038
info@solar-to-the-people.com

Solar to the People