SOLAR UNITED NEIGHBORS

Solar Owner's Manual

A GUIDE TO GETTING THE MOST OUT OF YOUR SYSTEM

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Introduction

About Solar United Neighbors

Solar United Neighbors is a 501(c)3 national organization dedicated to representing the needs and interests of solar owners and supporters. We're a community of people building a new energy system with rooftop solar at the cornerstone. We help you go solar, join together, and fight for your energy rights. Visit us at: www.solarunitedneighbors.org.

This guide serves as a support for solar homeowners whether you've just gone solar or you've had solar for years. Our goal is to provide practical information and tips to ensure you get the most out of your solar array.

Taking The Tax Credit

- Now that you've gone solar, be sure to take advantage of the federal Investment Tax Credit (ITC) if you can. The ITC is a one-time, non-refundable credit that you receive when you file your taxes for the year you had your solar array installed. This tax credit also applies to energy storage systems (batteries). You can roll over the tax credit to subsequent years if you're unable to use all of the credit in the first year. With the passing of the Inflation Reduction Act of 2022, the tax credit is: 30% of system cost for systems placed in service between 2022 and 2032.
- In 2033 it lowers to 26% of the system cost.
- In 2034 it lowers to 22% of the system cost.

Am I eligible?

If you own your system (you paid cash or financed through a loan) and you pay U.S. Federal income taxes, you should be able to take the residential tax credit for solar on your primary residence and possibly on a vacation or secondary home. When you file your taxes, you'll receive a credit (not a deduction) from the Federal Government. That credit is non-refundable. That means you have to have enough of a tax bill to use it. If you can't use it all in one year, you should be able to take the rest of it in a future tax year.

If the solar array on your property is owned by someone else (i.e. a lease or a power purchase agreement), the owner gets the tax credit.

When am I eligible?

The conservative view is that residential installations must be completed (the IRS code says "placed in service") before being eligible to claim the credit.

☀ **TIP:** Like any tax matter, check with a tax professional to make sure you qualify.

Taking The Tax Credit

How do I take it?

Taking the tax credit is easy. You just have to include IRS tax form 5695 with your tax filing. Your accountant can do this, or you can do it yourself using standard tax preparation software.

What information do I need to file?

You'll need the installed cost of the system before incentives. This is the amount you or your financing company paid the installer upfront.

> ☀ **TIP:** Be sure to keep a paid-in-full invoice from your installer on file with your taxes. If you're ever audited by the IRS, you'll want to have this available for review.

System Components and Terms

- **AC** - Alternating Current; The form of electricity your home and appliances use
- **DC** - Direct Current; The form of electricity produced by your solar array.
- **Inverter** - A device in your solar array that converts DC electricity into AC electricity, the form your house uses.
- **PV** - Photovoltaic; Anything that produces electricity from light, including your solar array.
- **Racking** - The hardware that connects your solar array to your roof (or to the ground).
- **Solar array** - A collection of solar modules connected together.
- **Watt (W)** - A measure of power. A solar module has a nameplate capacity of a certain number of watts. This tells you how many watts of power that module will produce under specific sunlight and temperature conditions. The actual amount of power that module will create will usually be less than the nameplate wattage at any given moment. The module's output will depend on:
  - Location
  - Orientation
  - Weather
  - Soiling
  - Module age
- **Kilowatt (kW) -** One kilowatt (kW) equals 1,000 watts. Installers will typically discuss the overall size of your system in terms of kilowatts. For example, if your system has fifteen 400-watt modules, the total capacity of your system would be 6,000 watts, which equals 6 kilowatts.
- **Watt-hour** - A measure of energy, or power over time. If you produce one watt of power for one hour, you have created one watt-hour of energy. This is how you measure the amount of energy your system produces in a given period. 1,000 watt-hours = 1 kilowatt-hour (kWh).

Important Records to Keep

Keep the following records on your solar system:

- Copy of your signed contract including your workmanship warranty
- Copy of final inspection paperwork
- Copy of your final utility interconnection agreement
- Spec sheets for your modules and inverters
- A copy of the module and inverter warranties
- Contact information for who to call for maintenance
- (optional) A Green Appraisal form with the solar module section filled in so you have it for reference later to share with your appraiser if you sell your home

Insurance

Have you called your homeowner's insurance company yet?

If not, contact them and let them know you have installed solar on your property. They will make a note of it in your file. Some insurers may increase your rates, others may lower your rates, and for some your rates may stay the same.

In some states, larger or "Tier 2" systems (Tier 2 size varies by local rules) require liability coverage that is usually purchased in the form of an umbrella policy. These policies can be relatively inexpensive ($100 to $200) and can also cover RVs, additional vehicles, etc.

☀ **TIP:** Ask your insurance company what deductible your solar array falls under for your policy. This may vary by policy and by geographic location. In hurricane-prone areas like Florida for example, it may fall under your storm deductible.

Monitoring Your Solar Array

Real-time monitoring is part of a modern installation. It lets you see how much energy your system is producing now and cumulatively since it was installed. It's important to know how to access your monitoring and how to read the information you see there.

How do I access my system monitoring?

Your installer should provide you with access to your system after they've fully installed it, tested it, and turned it on. It's often one of the final things they do as part of the installation but it's an important step. Monitoring software is almost always accessed online. Your installer will set up your inverter to send solar production information automatically to the inverter company's website.

> ☀ **TIP:** Make sure you know how to access your monitoring before you close out your installation with your installer. Ask them to show you how to see how much energy you are producing now and how much you have produced since the system was installed.

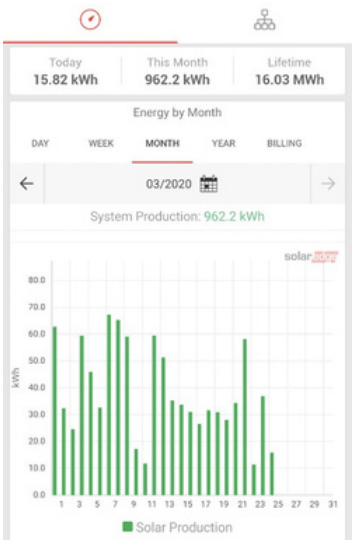
> ☀ **TIP:** Check your "app store" for a mobile-friendly version of your monitoring software. This can be a fun and easy way to track how much clean energy you're producing and show off to friends and family!

What can I see with system monitoring?

What you see and how it's displayed when you log in to the monitoring website varies by inverter manufacturer. There's some standard information that should be available:

1. How much energy (kilowatt-hours or kWh) your system is producing today.
2. How much energy your system has produced since it was installed.

Monitoring portals typically enable graphing and reporting by day, by month, by quarter, and by year. This enables you to see trends over time.

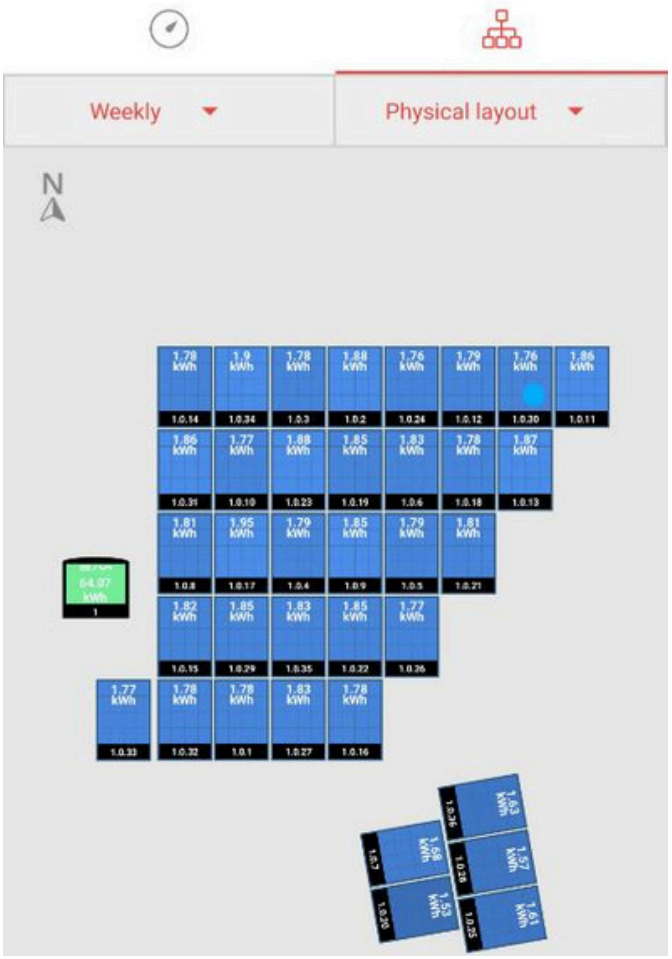


Monitoring Your Solar Array

Will the monitoring tell me if something is wrong?

Most monitoring software has the ability to alert someone when there is an error. Whether those alerts are sent to you depends on the software and, in many cases, how the installer has configured it for you.

☀**TIP:** If you're the owner of the solar array (i.e. you paid cash or financed with a loan), then you should be able to receive alerts if you want them. If you want alerts, ask your installer to configure these for you. If a third party owns the solar array (i.e. you signed a lease or a power purchase agreement) you may still be able to get alerts depending on their policy. If you want alerts, call the system owner and ask. If you cannot gain access to alerts but are concerned about system output, check the monitoring software for a view that will allow you to see the production of individual modules to identify potentially problematic modules or strings.



Maintainance

Solar modules are a simple, low-maintenance technology with no moving parts. This means it's unlikely your equipment will fail. Still, it's important to understand how to maintain them so they work as well as they can for the most amount of time.

Will I need to replace anything in the future?

You shouldn't have to replace your modules at all during their lifetime. The exception would be in rare cases of manufacturing defects or damage by severe weather.

You might need to replace your inverter after 10 to 15 years. This will depend on the type of inverter you have. String inverters can last 10 to 15 years. Microinverters can last 25 years. Learn more about inverters. Your warranty for either type of inverter should cover replacement costs and possibly some of the labor costs for any defects during the warranty period.

Wiring is the part of your solar array that could need maintenance. This is due to squirrels and other animals that may tamper with it.

> ☀ **TIP:** Ask your installer if they offer an extended warranty to cover the equipment replacement cost for your inverter(s).

How will I know if something isn't working?

Your solar array monitoring system can alert you and/or your installer if something isn't operating properly. You may also notice your system isn't working if your energy production (kWh) is too low or is zero. Keep in mind that energy production varies day by day, month by month, and even year by year. These changes are dependent on weather and seasonal factors.

Maintainance

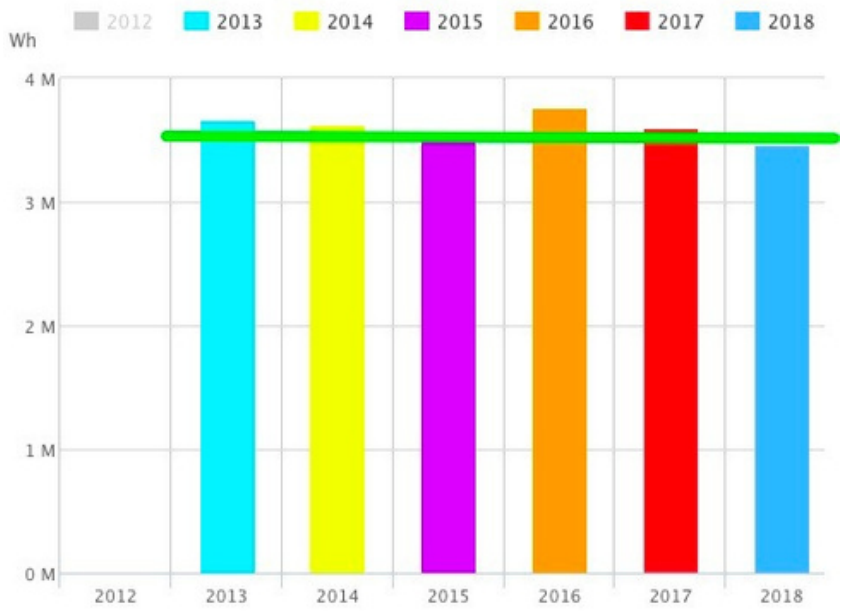


Figure 1: Sample shows typical solar energy production over a six-year timespan.

On a yearly basis (with some variation), your system should produce at a similar rate to what it did the year before. You should expect to see +/- 5% to 10% variation between years. We recommend checking your energy production monitoring periodically to make sure things look in order.

> ☀ **TIP:** Ask your installer who receives alerts from your system's monitoring software and what happens when they're alerted. Also ask how you should contact them for help.

Do I need to wash my solar modules?

In most cases, solar modules don't need to be washed. Rain and snow naturally clean them. However, in areas with less rain and lots of dust or pollutants in the air, occasional cleaning may improve performance. If you live in such an area, contact a solar professional to do the cleaning.

If you really want to clean your own modules, we don't recommend climbing up to wash them. Instead, consider purchasing an extendable brush used for cleaning recreational vehicles, or similar equipment. This will let you reach your modules safely from the ground.

Maintainance

Never use chemicals or soap of any kind. Water and a brush or squeegee are all you need.

> ☀ **TIP:** If you periodically wash your home siding and/or gutters, minimize overspray of cleaning agents onto the modules and ensure that they are rinsed thoroughly. Do not directly focus high pressure water onto the modules. Bleach and other cleaners may attack the glass or aluminum module frames.

Should I clear snow from my modules?

No, we don't recommend clearing snow for modules mounted on a rooftop. It's much safer to let the snow melt on its own. Because the modules are dark and slick, snow will melt or slide off relatively quickly given a couple sunny days. Once the modules are clear (or even partially clear) your array will start generating electricity again.

We do recommend checking out where your modules are and what's beneath them on the ground. After heavier snowfall, the melting snow can slide off your solar array all at once. If there are walkways or things that could be damaged by such a rush of snow below your modules, you may want to consider adding snow guards. These are small barriers that can be placed in between or on the edges of your modules. Ask your installer about these.

When should I get solar check-ups?

Solar is low maintenance, but we recommend getting a check-up every three to five years. This will make sure things remain in good working order. Your installer or any qualified solar professional can conduct these inspections. They'll take a look at all your equipment and make sure your system is performing properly. A solar professional can spot hard-to-notice issues like wire damage from critters.

> 👉 **NOTE:** It's your responsibility to make sure the solar array is working properly at all times. So, if you're leasing the modules or have a power purchase agreement, contact the owner about solar check-ups. The agreement should include information about upkeep, and you may receive an operations and maintenance guide from the provider.

Maintainance

☀ **TIP:** Ask your solar installer how much they charge for a routine system inspection. It may be included in your contract. They may also recommend a third-party maintenance provider.

☀ **TIP:** Have critter guards on your array? While they're helpful for keeping birds and squirrels from causing damage underneath your modules, they can sometimes cause other issues. They may allow debris to collect at the top of your solar array rather than pass underneath and slide down the roof. Debris can degrade your roof if you let it build up. If you have critter guards and notice debris buildup, we recommend scheduling periodic cleanings.

Who do I ask for help?

If you ever need help with your solar installation, contact your solar installer first unless they've instructed you otherwise. Your contract should include information for the correct department to call for maintenance requests. If your installer has gone out of business or is unresponsive, you may need to find a qualified inspector to service your installation. One resource to use is the listing offered by the North American Board of Certified Energy Practitioners (NABCEP). It allows you to look up qualified solar installation professionals, including those with NABCEP's PV System Inspector (PVSI) certification, by state and certification type. If you're having trouble finding someone, let us know. We may be able to help.

What if my roof needs repairs?

A rooftop solar array can last more than 20 years. During that time, you may need to repair or replace your roof. If so, you'll want a qualified solar installer to uninstall the array from your roof — and then re-install, test, and re-commission it when your roof work is complete. The cost for this work varies by installer and by the size of the array and is primarily the labor cost of removing and re-installing all the modules. Solar equipment can usually be stored on site while it's not on your roof.

☀ **TIP:** Ask your installer for an approximate cost so you can plan accordingly should your roof need repairs in the future.

Warranties

Solar modules are an investment in energy production. That production (in kilowatt-hours) is what lowers your electricity bill every month. Production losses due to equipment failures or performance problems can lower your solar savings.

Your installation should come with various warranties to protect you against this. These warranties should cover system components and workmanship. There are three main warranty categories:

- Product warranties;
- Power production warranties; and
- Labor/installation warranties.

What do product warranties do?

Product warranties cover potential defects with your solar modules and inverters. For example, should a soldered connection on one of your modules fail (adversely affecting its electricity production), that module would be replaced under the product warranty.

- Offered by: the equipment manufacturer (not your installer). Note that your installer (or the solar professional servicing your system) can exercise a product warranty on your behalf.
- What they cover: Product warranties cover the cost of equipment and may cover some or all of the labor cost to replace equipment.
- Typical timespan for solar modules: Solar panels can work for 25 years or more.
- Typical timespan for inverters: 10 to 25 years.

For central (or string) inverters, manufacturers typically offer 10 to 15-year product warranties. Microinverters and power optimizers (used with string inverters) typically carry at least a 25-year product warranty. Some manufacturers offer the option of purchasing extended warranties for your inverters.

What do power production warranties do?

Warranties

This warranty guarantees that your solar modules won't degrade by more than a certain percentage per year and will still produce some percentage (usually 80% or more) of their initial rated capacity, sometimes called nameplate capacity, for a minimum number of years.

- Offered by: the equipment manufacturer (not your installer).
- What they cover: While details vary, this warranty assures that your system will continue to consistently produce power over its lifetime. In practice, identifying whether your system is experiencing a drop in performance that violates this warranty is difficult without the assistance of an installer. Production warranties serve as a proxy for how much you should expect your solar module's performance to decline over time.
- Typical timespan: at least 25 years.

What about labor or installation warranties?

This type of warranty covers the installer's workmanship. This includes their electrical wiring work as well as any roof penetrations they make to attach your solar array to the roof.

- Offered by: your installer, unlike the product or power production warranties.
- Typical timespan: 3-10 years, though some can be as long as 20 years or more, with upgrades offered for an additional charge.

  ☀ **TIP:** Make sure you save a copy of the full contract language that covers your installation warranty. Save a copy of all system installation paperwork, warranties and extended warranties for your system and keep them all together. You'll be glad you have it if the need arises!

  ☀ **TIP:** Ask your installer if the cost of their labor is covered under their labor warranty should any product warranty replacement work be needed. This varies by installer. For example, if your inverter has a product defect and is covered under the manufacturer's warranty, will the installer come and replace it for free or will they charge you for labor to install the new inverter?

Warranties

How do I make a claim on a warranty?

If you own your system (you paid cash or financed it with a loan), contact your installer first with any concerns unless they have instructed you otherwise. Your installer or another solar professional can determine what's happening and whether any warranties are applicable.

If you signed a lease or a power purchase agreement (PPA), the system owner should monitor and deal with any issues, repairs, and associated warranty claims.

☀ **TIP:** Equipment warranty obligations for third-party ownership arrangements (leases and PPAs) vary by provider. Read your agreement to verify if you assume any equipment warranty obligations in the future while under contract.

☀ **TIP:** Is your solar installer out of business or unresponsive? You can locate a qualified solar professional with a PV Commissioning and Maintenance Specialist (PVCMS) certification in your area using the North American Board of Certified Energy Practitioners (NABCEP) list of qualified solar professionals. If you're having trouble finding someone, let us know. We may be able to help.

Is my solar array's energy production guaranteed?

A production guarantee says how many kilowatt-hours (kWh) your solar array will make over the year. It also tells you what happens if that energy production doesn't happen. These guarantees have some flexibility to accommodate variations in energy production that happen with changing weather from year to year.

For power purchase agreements (i.e. someone else owns the array), production guarantees are a fairly common part of the contract. Keep in mind that with arrangement, you are only paying for the energy (kWh) that the system generates on a monthly basis.

Many leases also contain production guarantees, but this varies by location and company. For systems owned by the homeowner (you paid cash or financed through a loan), production guarantees are not common, but some installers and loan financers offer them.

☀ **TIP:** Read your contract to verify if you have a guarantee. If you do, check the details and what you do if your array's expected production doesn't match reality.

Dealing with Loss of Utility Power

What happens if the power goes out?

Most solar arrays are "grid-tied," meaning they're connected to the local power grid. This allows solar homeowners to use their solar electricity when the sun is shining, and to switch seamlessly to utility-provided electricity on cloudy days or at night. For grid-tied solar arrays, it's important to understand how a power outage will affect your solar modules and your home.

When the power grid goes down, your solar inverter(s) will automatically stop producing electricity. This is a required safety feature, designed to prevent your modules from feeding electricity into the grid and injuring the utility workers who are servicing the wires.

As a result, when the grid is down and your solar modules stop producing electricity, your home will not have power (even if the sun is shining). When grid power returns you don't need to do anything at all. Your solar array will sense that grid power has returned, wait for a few minutes to make sure everything is okay, and then start producing power again when the sun is shining.

Dealing with Loss of Utility Power

What about battery storage?

Solar is the perfect partner for battery storage. A properly sized and configured solar system will recharge your batteries on a daily basis, providing the fuel to keep your battery fully charged and ready for use. Storing electricity in a battery bank can serve many purposes. In most parts of the country, battery storage for residential homeowners is mainly used to provide backup power during power outages.

When the utility grid goes down and you lose electric service, you can use a battery system to power some or all of your household electricity needs (called "loads"). The battery backup system works by isolating certain loads from the main utility system with something called an "automatic transfer switch". You are then able to power these loads with electricity stored in the battery bank. Loads can range from small (light bulbs, a toaster, or hair dryer) to large (a refrigerator or a well pump).

When the utility grid power returns, the backed-up loads in your home then automatically reconnect to the grid. The result is that these "critical" loads receive power even when the grid is down, switching seamlessly between utility electricity and stored electricity from your battery.

> ☀**TIP:** Absolutely! This arrangement is called a "storage retrofit." There are a few important hardware considerations (including how to interface with the solar) and financing considerations (federal tax credit eligibility) for storage retrofits.

Check out our battery storage guide and online battery FAQ for more information.

Selling Your Solar Home

Thinking about selling that great solar home of yours?

Potential buyers should know how it positively impacts your energy bill every month and what an asset your solar array is for your home. We've got some tips for you in our Selling your Solar Home guide.

For example, make sure your appraisal takes solar into account. You may also need to educate your real estate agent about the energy bill savings that solar brings.

Did you go solar with a third-party ownership agreement like a lease or a power purchase agreement (PPA)? Be sure to check out that part of the guide.

> ☀ **TIP:** If you own the system, check product, production, and installer warranties about the transferability of the warranty to a new owner. This could be an additional selling point.

Recycling Your Solar Equipment

Right now, recycling your solar equipment is difficult. We expect the options for module recycling to increase in the coming years. The solar recycling industry is still young, and the market is small but growing. The cost to recycle components and materials from those modules is still high. Solar manufacturers are also getting better at using less expensive materials. While this has the benefit of lowering the cost of solar modules, it also lowers the financial benefit of recycling them.

Governments and the solar industry will need to work together to make sure module materials go back into the manufacturing stream. The Solar Energy Industry Association (SEIA) is already working to improve recycling and reuse options through its national PV recycling program. Other more established industries provide inspiration. For example, 99% of car batteries are recycled. New automotive batteries are made primarily from recycled materials.

Solar modules can work for 25 years or more. The best way to help with the recycling challenge is to keep your system installed, working, and making you money for as long as possible.

What do I do when it's time to recycle?

Solar arrays should be disassembled by qualified personnel. Contact your original installer or find a reputable installer in your area that supports recycling. Also be sure to check out SolarRecycle.org for a listing of reuse, resale, and recycle providers. If installers aren't sure how to help you, point them to SEIA's recycling program for resources like this checklist of steps they can follow.

> ☀ **TIP:** Power purchase agreements and lease agreements typically specify that the provider removes the array from your property when the agreement is complete. Check your agreement for details.

Location-Specific Information

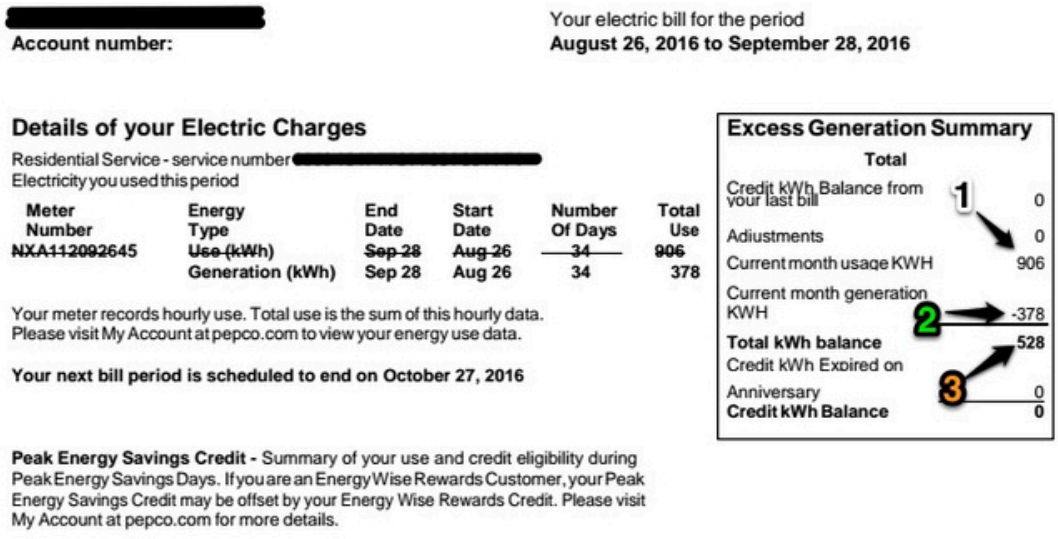
Some of the information you should know as a solar owner can vary widely from place to place. In this section you'll find some of those topics with standard considerations for each. Be sure to ask your solar installer if any of this information is different in your area.

Reading your new electric bill

Receiving your first utility bill after going solar is an exciting moment. You're a different kind of electricity customer now. You produce energy as well as consume it. Your relationship with the utility company is different and so is your utility bill.

Your home will immediately use some or all of the solar energy you make at any given moment. Any extra energy (like on a sunny day when you aren't home) will go through your meter and create credits for you that will show up on your monthly bill. This can cause confusion because the amount of energy (kilowatt-hours or kWh) your utility company records leaving your home is less than the number of kWh you generated, per your solar monitoring. Also, bear in mind that electricity bills do not follow exact month start and end dates, as your solar monitoring does. The utility company only sees and records the solar energy that goes through your electricity meter and back out to the grid.

The way your bill looks before and after you install solar will depend on your utility and how you're credited for the electricity you produce. Here's an example of what you might see on your bill if you have net metering and get a 1:1 credit for the electricity you make:



[redacted]
Account number:

Your electric bill for the period
August 26, 2016 to September 28, 2016

Details of your Electric Charges

Residential Service - service number [redacted]
Electricity you used this period

Meter Number	Energy Type	End Date	Start Date	Number Of Days	Total Use
~~NXA112092645~~	~~Use (kWh)~~	~~Sep 28~~	~~Aug 26~~	~~34~~	~~906~~
	Generation (kWh)	Sep 28	Aug 26	34	378

Your meter records hourly use. Total use is the sum of this hourly data.
Please visit My Account at pepco.com to view your energy use data.

Your next bill period is scheduled to end on October 27, 2016

Peak Energy Savings Credit - Summary of your use and credit eligibility during Peak Energy Savings Days. If you are an Energy Wise Rewards Customer, your Peak Energy Savings Credit may be offset by your Energy Wise Rewards Credit. Please visit My Account at pepco.com for more details.

Excess Generation Summary

	Total
Credit kWh Balance from your last bill (1)	0
Adjustments	0
Current month usage KWH	906
Current month generation KWH (2)	-378
Total kWh balance	528
Credit kWh Expired on Anniversary (3)	0
Credit kWh Balance	0

Figure 2: Sample electricity bill

Location-Specific Information

To better understand your energy usage and savings, please refer to the graph on the previous page. Here's a breakdown of your energy consumption during the reporting period:

- You consumed 422 kWh (800 - 378) of solar energy on-site as soon as you made it during the reporting period.
- Your total home electricity usage for that period is 1328 kWh. That's the 906 kWh you consumed from your utility, plus the 422 you used immediately from solar.
- The utility calculates your billable kWh as the 906 kWh you bought, minus the 378 kWh you sent to the grid when you were producing more than needed, for a total of 528 kWh.

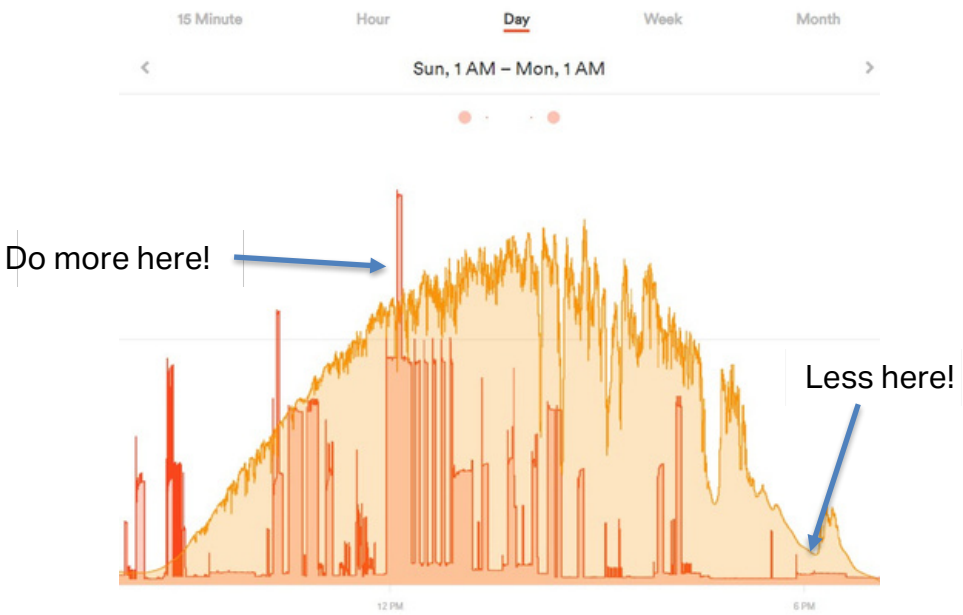
=	800 kWh	Energy (kWh) your solar inverter(s) reported you made kWh
	378 kWh	you sent to the grid (solar) & metered by your utility
+	---	
	422 kWh	kWh you produced and used immediately
=		
	906 kWh	kWh you used from the grid & metered by your utility
-	---	
	1,328 kWh	Total kWh your home actually used
=		
	528 kWh	kWh your utility billed you (after your solar credit)
	---	
	800 kWh	kWh your solar inverter(s) reported you made

What if I don't have net metering?

If you aren't credited at a 1:1 rate for the electricity you produce vs. the electricity you use, there are a number of different ways your utility may credit you. They could be paying you at a fixed rate, a rate that varies based on when you produced the electricity, or some other structure. Regardless of their method, the credits for your electricity production will still show up on your utility bill. Check with your installer to make sure you understand how to maximize the value of the electricity you're making.

☀ **TIP:** If you don't have net metering, keep in mind that timing matters — when you're using electricity compared to when you're generating it. It can have a big impact on the economic value of your solar array. This means to maximize your solar

savings you'll want to perform energy intensive tasks during solar producing hours if practical. Examples could include setting the dishwasher to a delayed start for an afternoon cleaning cycle, doing laundry or charging an electric vehicle during the day, etc.



Do I have a choice about what utility plan I'm on?

This depends on your utility. In some areas, residential customers can only be on one plan. A plan, or "tariff," is an explanation of how the utility charges you for your electricity. If you can choose the plan you're on after going solar, it may have a big impact on your solar savings. Some plans are set up to charge you different amounts for electricity depending on the time of day, time of year, or both. This is called a Time-of-Use (TOU) plan. After solar, this kind of plan means your extra solar production (what you don't use on the spot) may get credited at different rates at different times.

☀ **TIP:** If you aren't sure what your tariff options are, ask questions! Check with your solar installer and with your utility. Ask what impact a particular tariff has on the value of your solar.

Location-Specific Information

What are some common terms used on utility bills?

- **Customer charge (aka, "service charge"):** Paid whether you use any electricity or not; This is important for solar customers to consider. Even if you're able to offset all of your energy consumption, you'll still have to pay this charge.
- **Demand charge:** Applied to the maximum power (kilowatts) you use during the billing period or during peak times.
- **Distribution charge:** The part of your electric rate that covers the delivery of your electricity to you.
- **Fuel-charge (aka, "energy charge" or "generation charge").:** Paid for the fuel used to generate your electricity; widely from place to place, that fuel will be some mix of coal, gas, nuclear, hydro, wind, and solar that the utility company buys to provide everyone with electricity.
- **Franchise charge:** Paid to municipalities to allow the utility to operate in their jurisdiction.
- **Non-fuel charge(s):** The part of your electric rate that pays for maintaining the transmission system and power plants.
- **Off-peak:** When you're charged less than usual for what you use.
- **Peak:** When you're charged more than usual for what you use.
- **Rate:** How much your utility charges based upon the type of dwelling that's being metered; Utilities charge residents, businesses, and industrial facilities different rates.
- **[special] charge:** Extra charges that are included for specific things like energy efficiency programs, special projects to build infrastructure, or expensive cleanups from storm damage.
- **[taxes]:** Various taxes applied by the state and local governments.
- **Transmission charge:** The part of your electric rate that pays for transporting the electricity over a long distance from where it was generated

Location-Specific Information

Dealing with billing issues

It's rare that customers notice something odd in their electric bills after installing solar, but it happens. In such a case, it's important to follow up with the utility company. Errors, or what look like errors, can happen for many reasons. Here are two examples:

1. **Accounting system misconfiguration** - When you become a solar producer, the utility must record your production in addition to your consumption. To do this, they'll either configure your existing meter so it's aware that energy can flow in both directions, or they'll replace the meter with one that can. They may also need to configure your account. If that isn't done, their accounting system may not properly credit you for production.
2. **Budget Billing** - Some utility customers use a payment method called budget billing. This averages the cost of electricity service over the year and deducts equal amounts each month. To calculate this amount, the utility company uses the previous year's usage as the starting point. Each year, that amount is re-calculated for the next year. If the customer overpaid (i.e. they used less electricity than budgeted) during the year, they get a credit. If they underpaid (they used more electricity than budgeted), they get billed more. When solar is added to budget billing, the credits you generate from solar will reduce your bill. But the initial budget billing amount won't reflect your overall reduced usage until the next budget billing yearly re-calculation. Many solar homeowners find it less confusing to remove the budget billing feature from their accounts.

What do I do about a problem?

The first step is always to call your utility company's customer support line. In some cases, utility companies have a "green power" or "solar support" line that's separate from their main customer support line. Have your utility bills handy and explain the problem to them.

If the utility company can't or won't help you or is unresponsive, your next option is to see if your state has an Office of People's Counsel (OPC) or similar organization. The name of this group may vary from place to place but their role is the same — to represent utility customers and help them with service problems they are having with their service. If you get stuck tracking this down, let us know. We may be able to help.

Location-Specific Information

If you can't make any progress in solving your issue, the next step is to file a formal complaint with the agency responsible for regulating utility services. The agency names vary by state. Some examples are Public Service Commission (PSC), Public Utilities Commission (PUC), and Utility Regulatory Commission (URC). This government agency should have a process for you to file a complaint about your utility. The complaint will be logged as an official record and it typically requires them to respond to you. If you aren't sure what to do next, let us know in case we can help.

> ☀**TIP:** Some types of utilities may not be regulated by a government agency. For example, electric cooperatives sometimes aren't regulated, depending on the state. Municipal utilities may be overseen by a local city or county government. In such cases, you can still contact your regulatory commission and ask for help.

Selling your Solar Renewable Energy Credits (SRECs)

Depending on where you live, you may be able to monetize the green value of your electricity. These come in the form of Solar Renewable Energy Credits (SRECS). Solar Renewable Energy Credits (SRECs) are credits you can sell on an open market, separately from the physical electricity that your solar modules produce. Think of them like a "voucher" that proves that the electricity from your solar modules is renewable. You earn one SREC for every 1,000 kWh (or 1 MWh) of electricity produced by your solar array. These SREC "vouchers" are valuable because many utilities have to buy a certain number of them each year to meet sustainability requirements set by the states where they operate. Check out our SREC page for more background, explanation of SRECs, and ways you can sell them.

Supporting Solar In Your Community

Our energy system should work for everyone. That's why we're building a nationwide network of solar supporters who can identify and defeat the barriers that put solar energy at risk. We need the hard work of passionate solar supporters from across the country to fight for solar rights.

Join us by taking action to protect solar and energy rights in your community.

SOLAR UNITED NEIGHBORS

At Solar United Neighbors, we believe we should all have the right to produce - and store - our own power!
Join us:
SOLARUNITEDNEIGHBORS.ORG

Solar United Neighbors is a 501(c)3 nonprofit. We're a community of people building a new energy system with rooftop solar at the cornerstone. We help people go solar, join together, and fight for their energy rights.

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