

# How Solar Panels Work: Start Saving the Earth and Your Money in 2022

**We Love Answering Your Questions  
about How Solar Panels Work**



You're curious about how solar panels work and if they might be the next logical step for your home.

You like the idea of living a more self-sufficient life that has a positive impact on the environment. Or maybe you simply like the idea of saving money.

Let's be honest and admit the thought of converting to solar power can be a bit intimidating, right?

When something is new to us, we need to understand it, normalize it, and then feel comfortable with it. Since solar power is relatively new, there is a reasonable learning curve where questions arise from potential solar power pioneers.

Before making this big investment, you want to be sure solar panels are the best choice for you. We understand that. Educating yourself on how solar panels work and getting your questions answered is exactly what is needed to be comfortable to move toward a decision.

If you want to make a positive impact on the planet as well as save money, learning how solar panels work is a wise venture that we are passionate about at Palmetto.

These are frequently asked questions we love answering, and we invite any other questions you might have about how solar panels work.

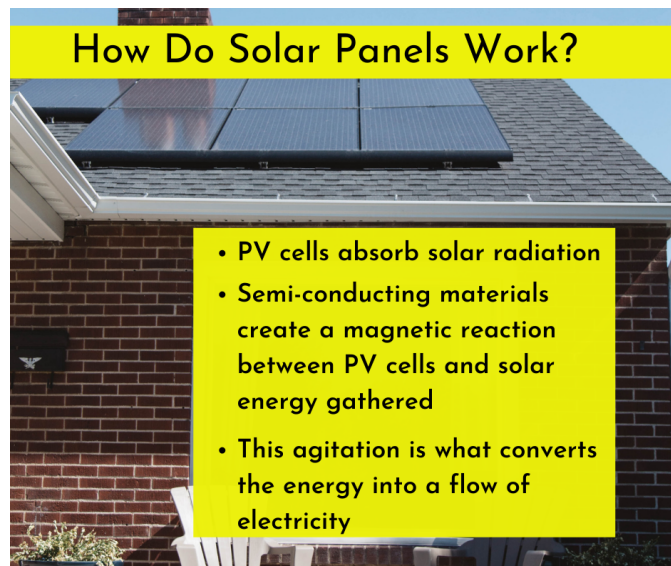
## How Solar Panels Work (Yes, Even on Cloudy Days)

If you're unsure of how solar panels work, you're not alone. They are a relatively new technology, so education is key. Spoiler alert: They are highly efficient, cost-effective, and are at work even when the sun is not bright.

The science behind how solar panels work is fascinating and worth explanation to help you understand why they are a viable option for you.

## How Solar Panels Generate Electricity to Power Your Home

Simply put, solar panels generate electricity by turning sunlight into energy. But HOW?



First, it's important to know what a solar panel is made of to understand how it works. Solar panels contain Photovoltaic (PV) cells. What is a PV cell? It is a cell that converts sunlight into electricity. Several of these PV cells are linked together within each solar panel to create a team of solar-converting cells.

Think of these collective PV cells as a colony of bees, diligently working together for the betterment of the hive—your home.

This wall of PV cells within each solar panel naturally absorbs energy from the sun. This energy gathered by the solar

panel then needs to turn from simple solar radiation to actual electricity.

To do this, the PV cells are paired with semi-conducting materials within each panel. This creates a magnetic field between the PV cells and semiconductors that allows particles of light to generate flow of electricity.

In other words, solar panels work by harnessing the power of PV cells and pairing those cells with materials that will spark a reaction. It is the power of science, and it still excites us when we talk about it.

## How Much Power do Solar Panels Generate?

Now you know the science behind the process that is occurring within a solar panel, but you need to know more than just how solar panels work. You need to know if the electricity they generate will be enough for your home, right?

The Average Home Needs  
Approximately 20 Solar Panels



We'll help you calculate your  
specific needs for your home  
and goals.



According to the US Energy Information Administration, the average US household consumes approximately 893 kilowatt hours(kWh) of electricity per month. Output will vary depending on size, style, and climate, but the common solar panel can produce an average of 17.5 - 42.5 kWh of electricity per month.

There is a reason you see homes with multiple solar panels installed on the roof. This is because each solar panel is working in unison with the other panels to collect a sufficient amount of energy to convert into enough electricity for your

family's needs.

Depending on your home's size and your family's usage level of electricity, you will need to determine how many solar panels will be necessary to cover your needs. If you live in a smaller home, you will obviously need fewer solar panels.

Determining how many solar panels you'll need takes some investigating and discussion within your family. It's time well spent if it means lowering your costs in the long-term and lessening your carbon footprint.

One of our favorite things to do is walk families through the process and help them take charge of their energy needs. As you consider taking this step towards being a solar panel pioneer, we completely understand there are variables to consider, and we are well-versed in this process.

## Are There Ways to Boost Your Solar Panels' Efficiency?

While you're determining your household's energy consumption and how many solar panels you will need, you might be wondering if you can boost your solar panels' efficiency. Aside from ensuring they are installed in the best position (we'll do that for you) and they remain as clean as possible, there are additional options for boosting your solar panels' efficiency.

## Solar Tracking

Solar tracking essentially means your panels rotate towards the sun, adjusting through various seasons and weather conditions to ensure your panels are always in the optimum position. This system is easier with smaller collections of solar panels.

Having a solar tracking system is not necessary. Adjusting your solar panels each season manually is easy to do. All it takes is knowledge of where the sun is (or where it would be).

## Concentrators

Mirrors reflect light, right? Some solar panel owners opt for installing a Fresnel lens or a mirror that acts as a light concentrator. These additions can often be bigger than the solar panels, so again, it takes planning to see if this would be the right addition to your solar panel array.

## Conserving Energy

This last bit of advice might seem obvious. If you're a person who is interested in how solar panels work, you already know about the importance of conserving energy. This also applies to creating solar panels that work more efficiently. Avoid running large appliances at the same time to conserve the energy created by solar panels.

## What Happens to the Electricity You Don't Use with Solar Panels? (It's Good News)

This is a common question, and we have good news. If your solar panels harness more electricity than you use in a month, it works in your favor for the next month. Say, for example, there is an especially sunny month, and your solar panels generate more energy than usual. This excess energy will then be automatically exported back to the power grid, giving you a credit for the future on your utility bills.

If Your Home Doesn't Use All the Energy Your Solar Panels Produce That Month,



You Receive a Credit Towards the Months When You Might Need it More.

This is an excellent advantage for customers living in climates that are not sunny year-round. As your solar panels naturally draw in the sun's power more during the summer, you can then use those credits later in the year such as the winter months when the sun is generating less energy and you

tend to be indoors more, using more electricity.

The excess electricity your solar panels created that you did not need, will be sourced to your neighbors, lessening their negative impact on the environment and saving you money on your next bill. It's a win-win that makes solar panel owners proud of their investment and leadership.

If you are someone looking to live entirely off-grid without attachment to a utility company, you would simply need to purchase a battery backup to capture any excess energy created by your solar panels.

## **How Weather Affects Solar Power**

A common misconception is that solar panels work well only in mostly sunny climates. The great news is this is not true. Solar panels are hard at work, no matter the weather, season or time of day. Weather affects solar power, but not enough to make it be a poor decision, no matter where you live.

### **Do Solar Panels Work on Cloudy Days?**

Not everyone lives in San Diego or Florida where the sun seems to never leave. What about those who live in Seattle or Buffalo? Solar panels work on cloudy days and are absolutely still a viable option.

Each PV panel is created to be effective in both direct and indirect sunlight, so solar panels work on cloudy days. Naturally, your solar panels will generate more electricity in months when the sun is more prevalent, but even on days when the clouds are blocking the sun, your panels will be collecting power.

In fact, rainy days are actually good for your solar panels since they help wash away any dirt to keep your solar panels working efficiently.

### **How Do Solar Panels Work When There is No Sun?**

Although solar panels work with indirect sunlight on days when the sun is hiding, they cannot work at night, since there is no light. They can, however, work to convert the day's sunlight they absorbed into electricity during the night. While you sleep, your solar panels continue to work for you, converting solar energy into electricity. Now, only if we could invent someone to wash your dishes while you sleep...

Even on days when the sun is not visible at all, there are indirect sun rays the solar panels will continue to absorb. And again, if you experience a time period with very little sunlight, you can rely on your stored credits from other sunnier months to carry you through months with less sunlight.



## How Well Do Solar Panels Work in the Winter?

We've all experienced sunburn even in the winter. That's because even though it's not warm, the sun is still hard at work, which means your solar panels will still be hard at work as well.

Winter's lower temperatures do not stop solar panels from converting available sunlight to clean solar power. In fact, the PV technology in solar panels works more efficiently in cooler temperatures. So even on cold winter days, your solar panels continue to do their job while you're inside enjoying the benefits of a warm home.

A common misconception is that solar panels won't work in the snow. Snow can actually enhance the performance of a solar panel in that it acts as a mirror, reflecting the sunlight more directly onto the solar panels.

When snow is covering the solar panels, their efficiency would decrease, but since they are mounted to face the sun and will most likely be on a slope, snow does not remain directly on the solar panels for long periods of time.

No need to ever pull a Clark Griswold and get on your roof to troubleshoot.

## Next Steps to Solar Power Your Home

Solar power is something we are truly passionate about at Palmetto. Time and time again, we talk to customers who are just like you: They are curious but skeptical about solar panels, and they have questions. A curious customer is our favorite kind because we welcome the chance to talk about the benefits of clean energy that comes with solar power.

You need to do your research for such a large investment, and we understand that and assist with that endeavor. We will sit down with you and consider all factors in your life to determine how much you could save by converting to solar panels.

Yes, switching to solar energy is an up-front investment, but it does lead to long-term savings and is a better choice for the planet. These are aspects we truly care about, and we suspect you do as well.



Solar Panels  
Work  
Year-Round  
to Create  
Clean  
Energy for  
Your Home



We walk our customers (who end up feeling like family) through the process from consultation, survey and design, to installation and ongoing support well after your solar panels have been installed. This is not just a job for us—it's our mission and values at work.

You are in charge of the process, and we follow your lead. The first step is to gather all the information you need to make a well-informed decision.

If you'd like to learn more and have a no-pressure conversation with one of Palmetto's knowledgeable team members, please call us at (855) 339-1831. Knowledge is power, and once you understand and feel comfortable with how solar panels work, we know you'll be as excited as we are about them.

Solar panels work year-round to bring you clean energy that makes less of an impact on the planet and your wallet. We're happy and honored to answer any questions you might have. We are in a very exciting time where the world is starting to understand the importance and viability of solar panels. One day when they are the norm and not the exception, you'll be able to proudly call yourself a solar panel pioneer who helped start this movement.

Everyone here at Palmetto is enthusiastic about getting you there on your terms.