

# How to maximize the energy savings of your solar system in five steps



# As solar power gains a stronger footing as a go-to choice for homeowners, more and more people are looking to utilize the sun's energy to reduce their electricity bills. And with a greater focus on our environment, there is also a desire to cut down individual carbon footprints.

To help you make the most out of your solar system, we'll discuss the five steps you can follow to help maximize your energy savings.

## Step 1: Make sure you understand your energy needs

In order for you to maximize your savings, it's essential that you fully understand the energy level requirements of your home.

You can start off by collecting your energy bills over the span of at least three months.

From here you can determine your average monthly energy usage. Although keep in mind that your energy requirements will vary depending on the season and the weather conditions.

Once you have your average figure, the next step is to identify which devices and appliances in your home consume the most energy. This way you can make an educated decision about how to use these appliances more efficiently. Thereby reducing your overall consumption.

## Step 2: Choose the right solar system components to fit your needs

To fully maximize your solar set-up, you'll need to make sure that you are choosing the right components. You will have to consider:

### Solar panels

Choosing the correct solar panels is a vital part of making sure you fully optimize the efficiency and savings of your solar system.

Solar panels are made of semiconductor material silicon to capture sunlight and convert it to electricity current. There are two main types of solar panels, crystalline and amorphous. Crystalline silicon (c-Si) solar panels are made of the crystalline forms of silicon. They have the highest energy conversion efficiencies and represent 95% of market share. Amorphous silicon (a-Si) solar panels are made of a thin layer of non-crystalline silicon. Despite low efficiency, they are flexible and bendable so are good candidates for curved surface in some unique solar projects.

### Solar inverters

In order to convert the direct current (DC) electricity generated by your solar panels into alternating current (AC), you will need a solar inverter. Put simply, this component allows you to convert the energy generated by your panels into electricity to power your home.

There are two main PV solutions:

**Microinverters:** Microinverters are a popular choice for residential solar systems. They are fitted to each individual solar panel. They use what is called module-level power electronics (MLPE) tech to make sure that each solar panel works at the optimal level (maximum power point), thus increasing the system efficiency. This means that even one panel is shaded or malfunctions, other panels in the array still perform as usual. These inverters also rule out the risk of fire from the outset by eliminating high DC voltage.

**String inverters & power optimizers:** String inverters are perhaps the most common type of solar inverters. They have a low cost point, but they may struggle to get optimal results because each PV string share one maximum power point. Therefore, power optimizers are often used in tandem with string inverters to transform the installation into a module-level system and reduce the DC voltage to a safety level.

### Solar batteries

Solar batteries allow you to store any excess power your solar system generates throughout the day. This excess power can then be utilized during periods of low sunlight or during the night.

By incorporating a battery into your solar system, you can take one step closer to avoiding an overreliance on grid power. They help to maximize your energy savings by not wasting any of the energy your system generates.

In some cases, you can sell any extra power you generate and store, back to the grid.

When choosing your various components, it is recommended that you consult a solar installer who will help you to choose the best components that fit both your energy needs and your budget.

## Step 3: Optimize the placement and installation of your panels

The specific placement of your solar panels makes a key difference in the efficiency and savings of your solar system.

Here are a few things that you should consider when installing your panels:

### Shading

It may sound obvious, but how much sunlight your panels are exposed to makes a big

difference in how much energy your panels can produce.

Make sure your panels are installed in an area that sees the most direct sunlight. Avoid any shade from trees or buildings, as shading can significantly reduce the efficiency of your system.

For complex installations with multiple roofs or orientations, or installations with chimney shading, it's recommended that you use microinverters. This is because they enable independent panel operation which helps to boost power generation.

### Direction

Ideally, your solar panels should face true south. This will maximize their exposure to direct sunlight throughout the course of the day.

Any roofs that face southwest and southeast are also efficient options.

### Angle

The angle at which your solar panels are installed can also make a significant difference to their efficiency. This should be optimized to your geographical location to maximize energy production.

The rule of thumb should be to angle your panels so that they are equal to your latitude. This allows for the best coverage of sunlight.

## Step 4: Monitor and maintain your system

To make sure your system is always running at optimal efficiency, you need to keep a close eye on its performance. Here's what you can do:

### Monitor for efficiency

You should regularly check up on your solar system's performance to make sure it's working at peak efficiency. You can monitor its energy production and consumption through your inverter manufacturer's monitoring platform.

Monitoring your system helps you to spot any potential issues early on. Allowing you to make any necessary adjustments to maximize its efficiency.

### Keep your system clean

As your panels are constantly outside in the elements, they will regularly accumulate dirt, dust, and other debris. This can hamper the performance of your panels and lower their energy efficiency.

## Maximizing your energy savings requires the right combination of having a suitable solar system, paired with the ability to make more energy-efficient choices in your day-to-day life.

Keep your solar panels clean with a soft brush, some water, and mild detergent if necessary. You should clean your panels at least once or twice a year for optimal performance.

### Inspect for damage

It's possible that your solar panels can become damaged, have a loose connection, or suffer from corrosion. This can be spotted by regularly inspecting your system for any issues.

If issues are spotted, you should contact a professional technician or your solar installer to address the problem.

You can streamline this process by using the monitoring platform typically provided by your inverter manufacturer to view and monitor your system.

### Schedule regular check-ups

It's recommended that you organize a check-up by a solar professional every few years. They can ensure that your system is functioning properly and can identify any issues that may be hampering its performance.

They can also recommend any upgrades if your system has become outdated or is not working to its full potential.

### Step 5: Adopt energy-efficient habits

Now that you've optimized your solar system, you should consider optimizing your own habits to push your savings further.

Here are some quick and easy ways to boost your personal energy efficiency:

#### Time your energy consumption

During sunlight hours, your solar system will be producing the most electricity. So by timing your energy-intensive tasks such as running the dishwasher, washing machine, or air conditioner during these hours, you can be more efficient with your energy.

#### Upgrade your appliances

Some older appliance models will use up more than their fair share of electricity. This can be helped by upgrading your appliances to newer models. These upgrades will help to reduce your energy consumption and boost your overall energy efficiency.

#### Utilize smart home tech

Implement smart home technologies such as automated lighting, energy monitoring devices, and programmable thermostats.

These technologies allow you to have greater control over the energy you expend, better

manage your consumption, and reduce your overall energy waste.

#### Eliminate 'phantom loads'

When an electronic device is not being actively used but still plugged in, it draws a small amount of power.

This is what's known as a phantom load, standby power, or vampire power. Although this is a minimal amount of energy, when spread across several appliances, it can quickly add up.

Reduce phantom loads by unplugging devices when they aren't in use. Or simply switching off the power source at the wall.

#### Save energy and optimize your solar investment

Maximizing your energy savings requires the right combination of having a suitable solar system, paired with the ability to make more energy-efficient choices in your day-to-day life.

By following these five steps, you can make sure that you're getting the most out of your solar investment and enjoy the benefit of reduced energy bills for years to come.

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