





Six rules to help you make the most of the sun

If you're looking for a way to save money on energy bills or reduce your carbon footprint, just look up. The sunshine could be your most powerful ally. Let's take a look at the six simple rules you can follow to get your solar system performing at its best.

Rule 1: Place your solar system in the perfect place and position

It seems like an obvious idea when you first think about it: if you want to generate as much power as possible from your solar panels, you need to make sure they'll be exposed to lots of sunlight.

But finding the right position for your solar panels can be tricky if you don't know all of the things that can affect your solar panel's performance.

The perfect position is also different for different kinds of installations.

Solar panel placement for roof installations

If you're installing your solar panels on the roof of a building, you'll need to think about three key things. Is any part of the roof shaded by trees? Blazing sunlight isn't much use if it's blocked by leaves and branches. Make sure you think about how the trees will look at different times of year too; if you install your solar system in the winter when trees are bare, you don't want to find that your panels are shaded in the summer when the trees are leafy and green.

Are your panels at the correct angle?

A good general rule is to position them at an angle between 30 and 45 degrees. Or, to get the perfect angle, studies say you should position your panels at the same angle as the latitude of your home.

What material is your roof made from? Have an installer assess your roof to make sure it is strong enough to support the weight of your solar system before you make any investments.

Solar panel placement for balcony installations

If you don't have any roof space, for example if you live in an apartment or somewhere without a suitable rooftop, you can still take advantage of solar power by installing your system on a balcony.

In this case, you'll need to think about two considerations: space and angle. The rules for optimising the placement of your solar panels on a balcony are mostly the same as they are for positioning them on a rooftop.

If space is tight, you might choose to install your panels vertically on the outer wall of your property, instead of at an angle on the floor of your balcony. This might mean your panels aren't getting the 'optimum' amount of light. But if you're in a sunny country, they can still generate a good amount of energy.

Solar panel placement for a ground-based installation

If you're installing your solar panels in a garden or courtyard, you'll want to follow most of the rules you would for a rooftop installation. Avoid shaded areas, make sure your panels are placed at the correct angle, and check that you have enough space to generate the amount of power you need.

Rule 2: Make sure your solar system can provide enough power to meet your needs

If you want to maximise the cost and carbon savings of your solar system, you'll need to make sure it will generate enough power to make the cost of installation worthwhile.

To figure out how to build a solar system that fulfills your energy requirements, you'll need to follow three steps.



Firstly, calculate your energy consumption. You can usually find this by looking at the number of kilowatt-hours on your monthly energy bill. Then decide how much of your energy you want to draw from solar power. You might want to rely on solar completely. Or, if sunshine in your region is a little more unpredictable, you might want to combine solar power with a traditional power source to make sure you always have the energy you need.

Finally, plan your solar system. A solar contractor will help you build a system that fulfills your requirements. They'll help you think about factors like the amount of sunlight that will fall on your property each day, and give you advice on choosing between different types of solar panels.

Rule 3: Make energy conversion as efficient as possible by choosing high-efficiency inverters

If you're new to solar power generation, you might not know about an important factor that can have a huge impact on how much energy your solar system generates: your inverters.

First, let's talk about the science behind solar panels. Solar power captured by your panels is direct current, or DC power; meaning the current only runs in one direction. DC power is great for use in cars or batteries, but it's not used in your home's electrical outlets.

That's why solar inverters turn the sun's DC power into alternating current (AC) power.

Microinverters are a type of inverter that converts energy from each solar panel individually. This means they're better at maximising panel output regardless of orientations. This stands as a contrast to traditional 'string' inverters, which convert power from multiple panels at the same time; if one panel is in shade, or develops a fault, the rest of the panels can keep generating power at full capacity.

When you're buying microinverters, look for ones with high CEC and MPPT ratings. These

will be more efficient and minimise the amount of energy that is wasted during conversion.

Rule 4: Conduct regular maintenance

Once your solar panels are up and running, maintaining them regularly will help make sure they last, and keep delivering maximum power, for as long as possible.

You'll mostly need to watch out for problems that can occur as a result of exposing your solar panels to the elements. Wind, rain, and heat can wear away at components, and dust and debris can obscure your solar panels and prevent the sun from reaching the solar cells.

To keep them working effectively, you should do a visual check of your solar system every couple of weeks. This shouldn't take long; just sweep any debris off the panels, clean off any dirt, and check that none of the components look rusted or damaged.

Rule 5: Decide whether you should use energy storage solutions to save any extra solar power for later

If it's a sunny day and your solar system is working efficiently, it might sometimes produce more energy than you need to power your property.

But with a battery energy storage solution, you can capture this unused solar power, and most importantly, use it at night, during periods of cloudy weather, or when an unexpected outage leaves you without power.

Of course, not everyone needs an energy storage solution. They cost a little more to implement, and you'll need a special kind of inverter, known as a hybrid inverter, to convert AC electricity back to DC electricity so that it can be stored in a battery.

If you're not sure whether you need energy storage, take a look at your usage patterns and the data from your solar power monitoring system. Are you regularly generating energy that you don't use? Or do you usually need to 'top up' your power supply with energy from the grid? If it's the

former, talk to an installer about adding a battery to your system. It could cut your costs and your emissions even further.

Rule 6: Understand your costs and your potential ROI

You're probably already aware that installing solar panels can be a great way to reduce your energy bills. Studies show that European households with solar panels and heat pumps saved between 62% and 84% on their energy bills compared to homes without solar panels.

Of course, you won't make that money back straight away. You'll still need to pay for the initial cost of installation. On average, a 3.5 kW solar panel system costs around €7,220, and the average 6 kW solar system in the US costs around \$8,500. Luckily, these costs are falling all the time. In the EU, for example, the cost of solar power modules fell 30% in 2023.

To maximise your savings, make sure you take some time to explore the solar power incentives that are available in your area. Lots of governments and local authorities offer grants or tax credits for homeowners who install solar power systems, which might help you 'break even' faster.

There is more and more support available for homeowners looking to take advantage of solar power, so make sure you do your research.

Better planning means bigger savings

Building an efficient solar system really depends on one key thing: how willing you are to do your research and plan ahead. At every stage, take some time to really understand how your solar setup, your space, your financing, and the equipment you choose will affect your results.

Following these simple rules is a great place to start. They'll put you well on the road to maximising your savings, minimising your emissions, and embracing the potential of solar power.