



# Best direction for solar panel system

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We have all heard that the sun rises in the east and sets in the west. However, the sun's movement throughout the day is a little more complex. Why does this matter? Well, if you are in the market for solar panels you'll need to understand the sun's complex movements as they pertain to your specific location.

The earth has an inherent tilt and orbit pattern around the sun, and although it appears to make a generic movement everyday, the planet will move differently over your zip code than it will for someone in another state.

Having a basic understanding of the sun's movement will help you realize the importance of the orientation and angle of your solar panels. In this article, we'll explain what solar panel orientation and angles are and the impact they have on the efficiency of your panels. This will set you up for success so you know the optimal conditions for peak solar panel performance.

Solar panel orientation is simply which cardinal direction the panel is facing: north, south, east or west. Typical solar panel application will follow true direction rather than aligning with the magnetic poles. For example, true north aligns with earth's true axis rather than aligning with the north pole.

Homes that have solar panels facing directly east or west will produce around 20% less energy. The proper solar panel orientation for homes located north of the equator is facing true south. For homes located south of the equator, it will be the opposite--facing true north. This will provide the best orientation to allow the most exposure time to the sun and produce the most amount of electricity.

For summer and the warmer months, it will be 15 degrees minus your latitude. For winter and the cooler months, the ideal solar panel angle will be 15 degrees added to your latitude.

The proper angle of your solar panels will not only be affected by your geographic location but also by how the sun changes with each season. During the summer months, the sun will sit higher in the sky. And in winter, the sun will sit lower in the sky. This means that in order to get the most production out of your solar panels you will need to change the tilt with each season.

However, most solar panels installed for home use are mounted on the roof at a fixed angle. Meaning, the process of changing the angle of your solar panels with each season can be quite difficult. There are systems that can be installed that will track the axis of the sun and adjust the angle over time. But currently those systems are very expensive. And while they do increase the output of your panels, the increased cost may not be worth the initial investment; especially considering the high cost of solar panels in the first place.

For instance, installing solar panels on a roof with a steep tilt may mean you can't achieve an optimal

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tilt with a traditional racking system. Therefore, depending on how steep the angle of your roof is, the best you can do is lie your panels flat against the roof.

Installing solar panels on low-angle roofs can also be complicated since they may require specialized racking if you want to tilt them at the optimal angle. Flush-mounting solar panels on a low-angled roof will produce less electricity and reduce solar savings.

To receive exceptional solar savings, you'll want your solar panels to be angled in a way that optimizes the sunlight exposure for that location. This is done by tilting your solar panels at the same angle as the latitude of your home. For most homeowners, the ideal angle for a solar panel installation is close to or equal to the latitude of your home. This angle is typically between 30 degrees and 45 degrees. Doing so ensures your home will get the maximum average output from your solar power system throughout the year.

The time of year can certainly depict how effectively your solar panels work due to the sun's position. For example, during the winter in the northern hemisphere, the sun is lower to the horizon. Therefore, it is more difficult for your solar panels to capture the sunlight to create energy.

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