



# Cost of grid tied solar panels

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One of the first questions people ask about solar is "how much does it cost"? Unfortunately, there isn't a universal answer because the cost of a solar system can vary quite a bit from household to household. Contrary to popular belief, the size of your solar system is not determined by the square footage or number of people in your home, but instead on how much power you use throughout the year.

If you have a new home, (new construction or new to you) it is a bit more complicated to determine the proper size of a system because there isn't any historical electrical consumption to use as a baseline. So instead we either do an analysis of your anticipated loads, or we just use the amount of roof space you have and your budget goals to select a system size.

Where you put your solar panels can have a significant impact how much your power system costs. Generally speaking, roof mount racking will cost less than a ground or pole mounted system. Roof racking simply attaches to the roof of a home or building, whereas ground and pole mounts require some sort of foundation. Ground and pole mounted installations also may require additional machines to dig holes for the poles and to trench for conduit runs, as well as to pour a cement foundation to properly secure the poles into the ground.

If you are planning to have your solar array mounted onto your roof, a pitch above 6/12 is too steep to walk on and requires a lift or scaffolding to help you or your solar installer safely attach panels without the risk of falling. If the roof pitch is above 6/12 installation is still possible, but it requires some additional planning and costs.

If you have a home with a multi-faceted roof on the southern-most side, you may need to do multiple sub-arrays to provide the amount of power you want. Sub-arrays may not be significantly more expensive, but they will add something to the labor and material costs for your system. Also, if you have chimneys, roof vents or skylights in the way, they may limit the size of system you can have, or require sub-arrays.

There are some incentives available that will actually reduce your system's cost. The most significant incentive for solar installations is the Federal Solar Investment Tax Credit, which lets you claim a 30% credit for the total project cost of your solar power system off your taxes if installed between now and 2032.

Another incentive, net metering, allows grid-tied solar systems to earn "credits" with your utility whenever your system produces excess electricity (more than you are consuming at the moment). Then, when you need more electricity than you produce, you spend those credits. In most states net metering credits are at the same rate you pay when you purchase power from your utility. However, it is important to check the net metering policies in your state and for your specific utility to be certain their policies are solar friendly.

The amount of usable sunlight at your home's location will impact how much power your solar array



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generates. If you live in an area with fewer average sun hours per day, or if your home's roof experiences shading at certain times of the day or year, you may need a larger system to cover the amount of your electrical use you want.

A grid tie solar system's cost can vary significantly based on the size and location, with the national average cost in the U.S. ranging from \$15,000 to \$25,000 before tax credits. However, after considering federal tax credits, the price drops to approximately \$10,500 to \$17,500. Additional state, local, and utility incentives can reduce the cost even further.

A grid-tied solar system, also known as on-grid, grid-interactive, or grid backfeeding solar system, allows homeowners and businesses to generate their own electricity from solar energy absorbed by solar panels typically mounted on the roof. The primary function of these panels is to convert captured sunlight into electricity, harnessing the powerful and plentiful energy source right above us. The solar panels are coupled with an inverter to convert the direct current (DC) produced from the panel to alternating current (AC) used in your home.

The initial investment of installing a grid-tied solar power system at home majorly covers the solar panels, mounting equipment, an inverter for converting solar power into electricity, grid-tie wiring, and labor costs. Keep in mind that the expenses can vary greatly based on the complexity and size of the system, as well as the specific conditions of your site such as distance from the power grid, landscape, and regional costs.

Once your solar system is installed and functioning, ongoing costs are relatively low. Solar panels require occasional cleaning, especially in dusty areas, but this responsibility can often be handled by the homeowner. The primary wear-and-tear part of the system is the inverter, which may need replacement after 10 to 15 years. Moreover, the decline in panel efficiency over time is usually slow enough that even after 25 to 30 years, your panels should still operate at 80 to 90 percent of their original capacity.

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