



# Solar panels for home use

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There are differences among solar panels, but experts say that finding the best installer is likely more important than getting the very best equipment. The best solar panels for you are going to be the ones that fit your energy goals and budget. There are also many factors you'll have to consider before moving forward with your installation, including the size of your roof and the energy consumption of your home. Both factors will likely inform what solar equipment you choose to install on your home.

Interested in understanding the impact solar can have on your home? Enter some basic information below, and we'll instantly provide a free estimate of your energy savings.

This best list doesn't rely on any in-person testing. Instead, the data we used to rank solar panels is pulled from the publicly available spec sheets companies publish for their panels.

Maxon spun off as a business from SunPower in 2020, but its panels are still largely installed by SunPower and its subsidiary, Blue Raven. Maxon also co-leads the field for solar panel efficiency (Its high mark for efficiency, at 22.8%, is a big part of the reason it scores highly overall.) Maxon's panels range in size from 360 to 440 watts and have temperature coefficients of -0.29% or -0.34%, according to their published specifications. Many Maxon panels have production warranties that guarantee 92% of their rated output after 25 years, another high mark for the industry.

Solar panels from REC have maximum efficiency ratings from 20.3% to 22.3% and a temperature coefficient of -0.34%, though one model, the REC Alpha Pure, checks in at -0.24%. After 25 years, REC guarantees its panels will be producing 86% or 92% of their rated power, depending on the model.

Even REC's panels that aren't all black are mostly black, offering the sleeker look some people appreciate. It ties SunPower Maxon for our best overall solar panel.

Panasonic solar panels come in sizes up to 410 watts and have efficiency ratings up to 22.2%. All of Panasonic's solar panels come with a 25-year production warranty that says the panels won't fall below 92% of their rated capacity. That mark matches REC and SunPower, but beats every other panel we looked at. Panasonic panels have a temperature coefficient of -0.26%, although one model comes in at -0.34%. Panasonic does offer panels that come with an all-black look. Installers of Panasonic solar panels can be found around the US.

Canadian Solar ties Maxon for the most efficient solar panels out there. Its HiHero model has a maximum efficiency rating of 22.8%. We ranked Canadian Solar's high-performing panels just a bit below the two above, mostly because it guarantees slightly lower levels of production after 25 years in its production warranties -- about 85% to 89%. This is still pretty high for the industry. Canadian Solar's temperature



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coefficients top out at -0.26%.

Some of ZNShine's panels come with a 30-year production warranty, five years more than the industry standard. While some companies offer an option for 30 years, ZNShine and a few other companies are starting to make 30 years standard. Some of the company's models come with a warranty that guarantees 82.5% of their rated warranty after 30 years (that's about 85% after 25 years). ZNShine panels also have high efficiency ratings (most come in over 21%) and temperature coefficients clustered around -0.35%. It offers mostly black panels, but no all-black versions as of yet.

Qcells panels are the most widely installed panels in residential solar arrays in the United States. Over 33% of all residential panels installed are manufactured by Qcells. Qcells' panels have efficiencies nearing 21% and temperature coefficients of -0.34%. They come with 25-year production warranties guaranteeing their performance won't fall below 86% of their rated capacity. SunPower recently started installing Qcells panels as a cheaper alternative to its premium Maxeon models. Qcells panels are also manufactured in Georgia, with more factories being built nearby.

JA Solar: Solar panels from JA Solar max out at 21.5% efficiency and have warranties guaranteeing nearly 90% of their rated production after 25 years. (JA Solar's warranties are actually 30 years long, guaranteeing 87% at that time.) They also have a temperature coefficient of -0.35%.

Jinko Solar: Jinko's solar panels have high-efficiency ratings, with at least three in the group topping out over 22%. Their 25-year production warranty lags behind many of the others on this list; it's set at 83.1%. Jinko does make all-black solar panels. Jinko has an American factory in Jacksonville, Florida, which was raided by federal authorities in an apparent probe, about which few details are known. On a more positive note, Jinko's recent breakthrough with the Tiger Neo 3.0 module achieved an efficiency of 24.8%. The new solar panels use the TOPCon modules and are available in 495W and 670W output versions, with the smaller one intended for residential systems and the larger for utilities.

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