How Many Solar Panels Do I Need if I Live in California?

Glad you asked. As a solar installation company that serves California, we often get that question.

Let's start with some facts about the USA as a whole. First of all, the standard photovoltaic solar panel generates an average of 250 watts of power. Since the average US household consumes around 11,000 kilowatt-hours (kWh) per year, that home will need 28–34 solar panels on the roof to generate all the power it needs. (A kilowatt-hour is how many kilowatts—units of 1,000 watts—are used in one hour. That's the basis for how your utility company charges you).

In California, though, that average yearly consumption is 30% lower—just 7,000 KWh. That's among the nation's lowest, not far ahead of the very lowest, which is Hawaii, where the average is only 6,000 kWh per year. The reason Californian homes use less power is our typically mild and beautiful climate, which means less reliance on air conditioning and heating.

Although Californian homes use less electricity, however, our spending is closer to the national average than our consumption is. That's because of higher energy prices in the state, which, along with state government policies, create more incentive to go solar. Now here's some good news. SouthWest Sun Solar uses 280-watt solar panels, a 12% improvement in power output over the standard. Bottom line: an average California homeowner who buys from us will only need 16–19 panels.

Now, these *are* only averages, not a guarantee. So if you want a more accurate figure, you can easily calculate your own power consumption. Here's how to do it:

1. Check your total power consumption (kWh used) for the last year. This figure should be on your last December's electric bill. If not, just call your utility and they'll give it to you.
2. Get out your calculator and divide your total kWh used by 1.31 and 1.61. Those two figures are the lowest and highest *energy production ratios* for solar panels in the US. A production ratio is simply the estimated number of kWh/year a set of solar panels will produce, divided by the total wattage (power-generating capacity) of the set of panels. A higher production ratio usually means a higher percent efficiency.
3. Divide each of those two results by 280, which is the wattage produced by one SouthWest Sun Solar panel. That should give you a more accurate range for the number of solar panels you'll need for your home.

If you'd like to know more, get in touch. We'll be happy to give you our own estimate, absolutely free.

References:

How to Calculate and National Averages - Link

California Average - Link