



Solar Powered Electric Vehicles

2023 CONSUMER GUIDE



There is no better time to pair home solar with an electric vehicle (EV) purchase.

Charging your EV with solar increases energy independence while contributing to a cleaner, greener future. What's even better? You get to save money while you do it.

SolarReviews has outlined the key benefits of charging an EV with home solar.

Hint: it will save you money every single month and over the lifetime of car ownership.

Interest in solar-powered EVs is on the rise.

Over the course of 2022, SolarReviews saw over 1 million views on EV-related blogs. There was also an 80% increase in solar estimate requests submitted by readers of the article:

[How and why to use solar panels to charge an EV.](#)

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These increases signal that more people are researching EV options and are interested in the benefits that solar can provide to their electric lifestyle. 2023 might be the best time to switch to an electric vehicle, with abundant choices and revamped tax benefits for EV purchases.

Electric cars cost less to operate and maintain.

According to the U.S. Department of Transportation, the average American drives about 13,500 miles per year, or roughly 40 miles daily.

With a gas-powered car, those miles would cost \$0.10 per mile to maintain versus \$0.06 per mile for maintenance on an all-battery EV.

When it comes to maintenance, EVs cost 40% less than gas-powered cars over their lifetime.

| | Gas-powered Hyundai Kona | Kona EV |
|----------------|---|---|
| Miles annually | 420 gallons of gas needed for 13,500 miles (based on 32 mpg fuel economy) | 3,645 kWh of electricity for 13,500 miles driven. |
| Cost | \$1,440* per year nationally | \$830 per year in California (\$435 per year in a cheap electricity state like Florida) |

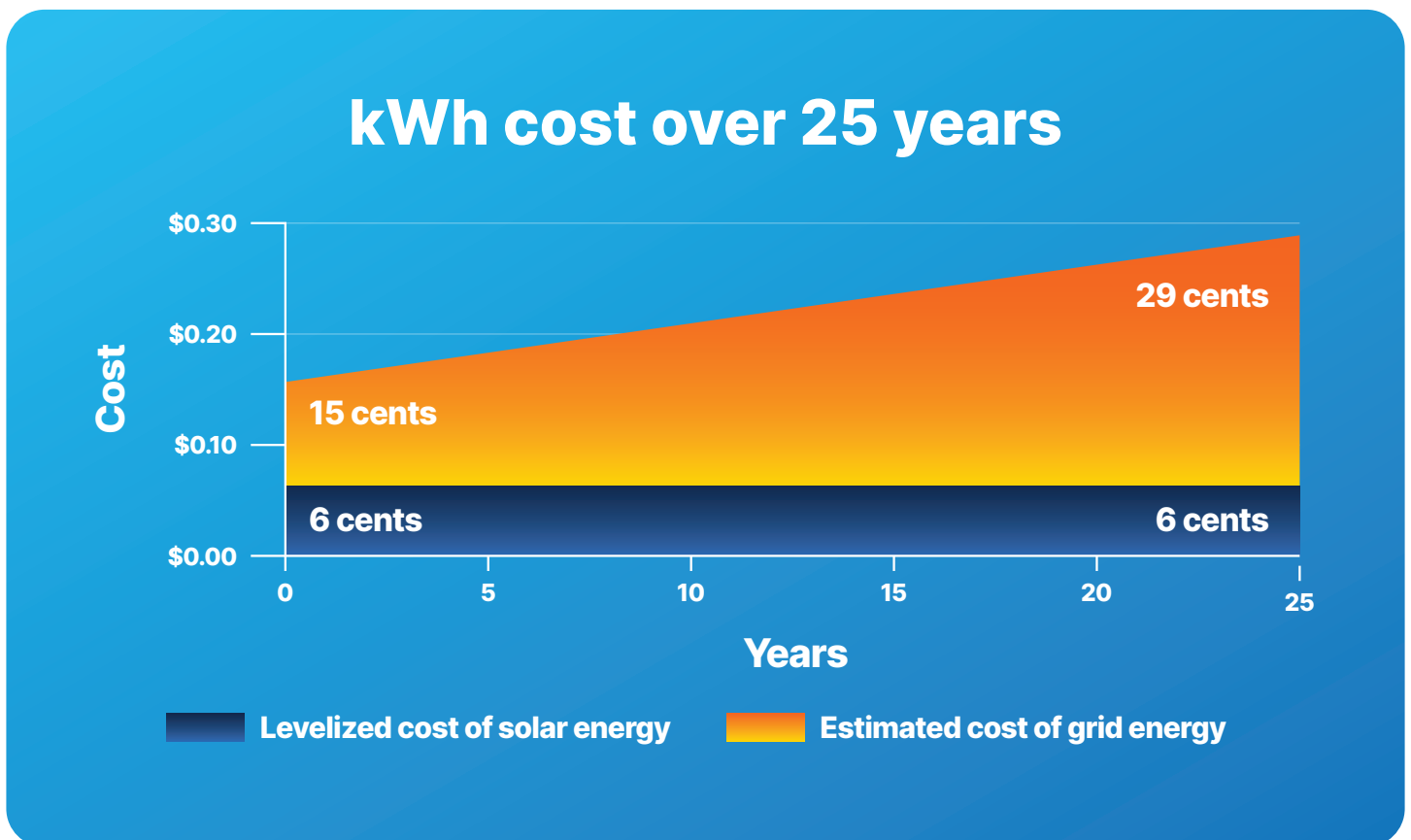
**Gas prices are highly variable, and they've never been higher due to inflation and the war in Ukraine. Our projection uses recent annual average gas prices.*

By choosing home solar, you can make an EV even more efficient and inexpensive.

Charging your EV with solar panels is the most affordable method to power your car.

The long-term cost of solar panels is much less than buying electricity from the grid in nearly every state in the U.S. In some cases, the cost of producing your own solar energy is over 50% lower than buying from a utility company.

The ongoing cost of fuel from the grid is whatever you currently pay for a kilowatt-hour (kWh) of electricity. In the U.S., electric rates can be between \$0.10 and \$0.40, depending on where you live. But the average is about \$0.15/kWh and rising. Meanwhile, the levelized cost of home solar in good solar states is currently about \$0.06/kWh.



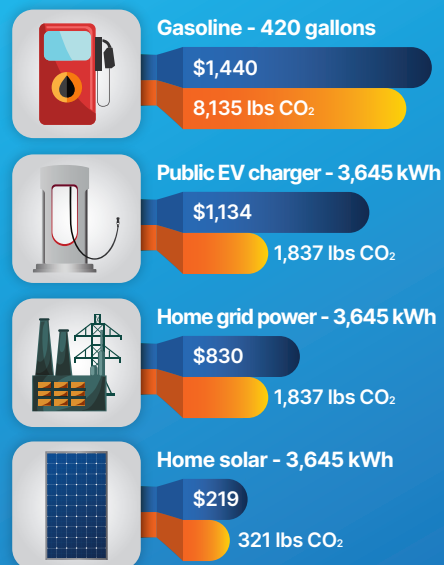
That means that for 25 years, solar panels shield you from rising utility costs and allow you to charge your car for less. You can install enough solar panels to meet your home's energy needs, charge your car, and save thousands of dollars over time.

Solar-powered EVs are better for the environment.

Switching to an EV already means you're cutting emissions by eliminating the need for gasoline and oil, but electricity from the grid still comes primarily from fossil fuels. **By running your car on solar power, you further cut down on carbon emissions.**

At the same time, the levelized cost of solar energy is cheaper than grid power in most cases. The cost of grid power increases over time, while solar panels keep producing electricity without additional cost and with a **much lower carbon footprint.**

Fuel for one year (13,500 mi):



Solar-powered charging is cheaper and more consistent than other charging sources.

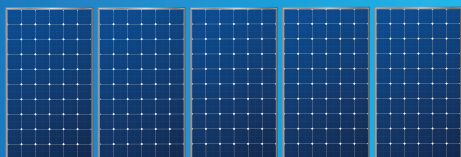
There are three ways to charge an EV: the grid, public charging stations, or your own solar panels. Public charging stations are the most expensive charging option, but they are almost impossible to avoid.

Charging at home as much as possible can help offset this expense - and charging with home solar is the cheapest option.

| Type of charging | Cost | Important to keep in mind |
|---------------------------------|--------------------------|--|
| Public charging stations | \$0.31 to \$0.69 per kWh | Varies based on location and charging station owner; additional idle fees; some require monthly subscription; cost increases over time |
| Grid power at home | \$0.10 to \$0.40 per kWh | Varies based on location and time; cheapest at night; cost increases over time |
| Solar power at home | \$0.06 per kWh | Levelized over the course of the solar panels' lifetime; additional solar energy can be used to offset electricity bill |

What a home needs to power a Tesla Model 3

5 solar panels



Inverter



EV charger



= 40 miles a day

So, how much solar do you need to power your EV?

Of course, you can't just stick five solar panels on your roof and plug them into your car. You need a solar panel system and all the equipment that goes with it. A typical solar EV charging setup will include solar panels on your roof, an inverter that makes the electricity from solar panels usable, and a Level 2 (L2) EV charger.

Just a handful of solar panels on your roof is enough to provide energy to charge your electric vehicle. For example, buying all the equipment necessary to charge a Tesla Model 3 with home solar might cost around \$5,400 after the federal solar tax credit (around \$4,200 for five 400-watt panels and \$1,200 for an EV charger). But, simply adding five panels to an already-planned home solar installation to meet EV charging needs would certainly cost less.

SolarReviews estimates that charging an EV with solar for 25 years could result in \$16,250+ in savings by the end of the solar panels' production warranty.

Electric vehicles are the future - and using solar will make your EV investment more affordable and sustainable.

Electric vehicles and home solar panels are the perfect fit. Solar panels can fuel your electric vehicle needs affordably and sustainably, for life.

Learn more at **SolarReviews.com**, where you'll find qualified local solar installers to help you increase cost savings and lower your carbon footprint with solar power.

Sources:

Gas prices (AAA): <https://tinyurl.com/ye22xa98>, CO2 per gallon of gas (U.S. EIA): <https://tinyurl.com/3xu3a4es>, U.S. Energy prices (U.S. EIA): <https://tinyurl.com/228t8asj>, CO2 per kWh in CA (U.S. EIA): <https://tinyurl.com/4eap97cx>, Embedded CO2 of lithium batteries (CES, T&E): <https://tinyurl.com/kkeryj2u>, Home solar LCOE (SolarReviews): <https://tinyurl.com/2ve8fwwx>, CO2 per kWh of solar (NREL): <https://tinyurl.com/vne7du2a>