

Solar Panels—Are They Fire Hazards?

Let's start by looking at common technology we all use in our daily lives and consider safe. Washing machines, dryers and cars fit this bill. And then, let's take a look at solar panels.



Washing machines and clothes dryers cause an average of 15,970 house fires per year [FRF-1, NFPA-1]. In 2020, there were 140.8 million homes in the United States. The incident rate of fire from this type of appliance is 0.0113%. Will you stop washing and drying your clothes because of this known risk?

Can vehicles cause fires? Yes, they can. Of 276 million vehicles in the U.S., an estimated 212,500 vehicles caused fires [NFPA-2]. That's 0.077%. Are you going to stop driving, because of this risk? Almost certainly, no.

And why not? It's because washer, dryer, and vehicle fires are so rare, generally, we are unconcerned and choose the benefits of washing our clothes and using cars for transportation.

Can solar panels cause fires? Yes, they can. Now that you know solar panels could cause a fire, will you decide against a solar-electric home or a solar farm, just because they might be fire hazards? Not likely, as the risk of fire caused by a solar system is rare.

In fact, it's much more likely you'll experience a fire from washing your clothes and driving your car than from the solar panels on your roof.

Solar Panel-Caused Fires Are Rare

According to *The Solar Nerd's* research [source [references] are listed under References, right column], "There are millions of solar panels installed every year, and fires that are caused by solar panels are extremely rare—so rare that data on the number of incidents in the United States is hard to find. Fortunately, some other countries have some data.

One report ... is from the United Kingdom, where there are nearly one million PV systems currently deployed. A report by the UK government found that a total of 58 fires have ever been found to be caused directly by PV systems, an incident rate of 0.0061% [BRE-1].

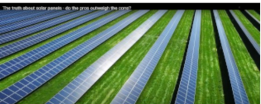
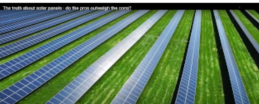
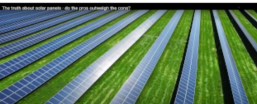
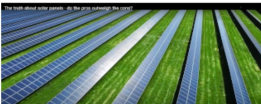
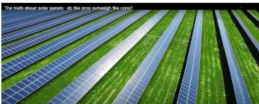
The consumer safety commission in Japan traced 13 solar-related fires over a 10 year period. There are approximately 2.4 million solar installations in Japan, which is a fire incident rate of 0.00054% [PVM-1]

And ... data from Germany shows a fire incident rate of about 0.0014% among the 1.4 million solar panel installations there [FRN-1].

These are all extremely low numbers. You're much more likely to have a fire from a cooking-related incident. We don't avoid cooking at home because of the fire risk, nor should you avoid home solar because of a miniscule fire risk."

—The Solar Nerd, 2020 [TSN-1]

Just like fires caused by faulty vehicles, washing machines, and dryers, solar panels cause fires as result of faulty solar installations.



References

Clicking on a reference opens a new window. To return to this page, just close the new window

[FRF-1] 14 Most Common Causes of House Fires, Ranked! (2020)

[NFPA-1] NFPA's Home Fires Report (2020)

[NFPA-2] Vehicle Fires (2020)

[TSN-1] Can solar panels catch on fire? (2020)

[PVM-1] Japanese government warns against fire risk from rooftop PV (2019)

[BRE-1] Fire and Solar PV Systems—Investigations and Evidence (2018)

[FRN-1] Recent Facts about Photovoltaics in Germany/Can defective PV plants cause a fire?, pp83-85 (2021)

[BI-1] The US consumer safety regulator is investigating Tesla solar panel fires on Walmart stores and Amazon warehouses (2021).

[SEIA] Fire Safety & Solar (2021)

[NCH-1] Solar Panel Fires and Electrical Hazards

[SCN-1] Solar Farms Threaten Birds (2014)

QIV Research suggested search terms: *solar panels fire hazard* or *solar panels fire and birds*

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