

# The Real Lifespan of Solar Panels

Last updated May 7, 2014 by [Mathias Aarre Maehlum](#)

Solar panel manufacturers put a lot of effort into making their solar panels robust. They need to be able to withstand heat/cold cycles and heavy weather. However, solar panels are not perfect and they will inevitably age. Keep reading to find out how age affects performance and what this actually means.

## How fast do solar panels degrade/lose their efficiency?

The rated power output of solar panels typically degrades at about 0.5%/year. However, thin-film solar panels (a-Si, CdTe and CIGS) degrades faster than panels that are based on mono- and polycrystalline solar panels:

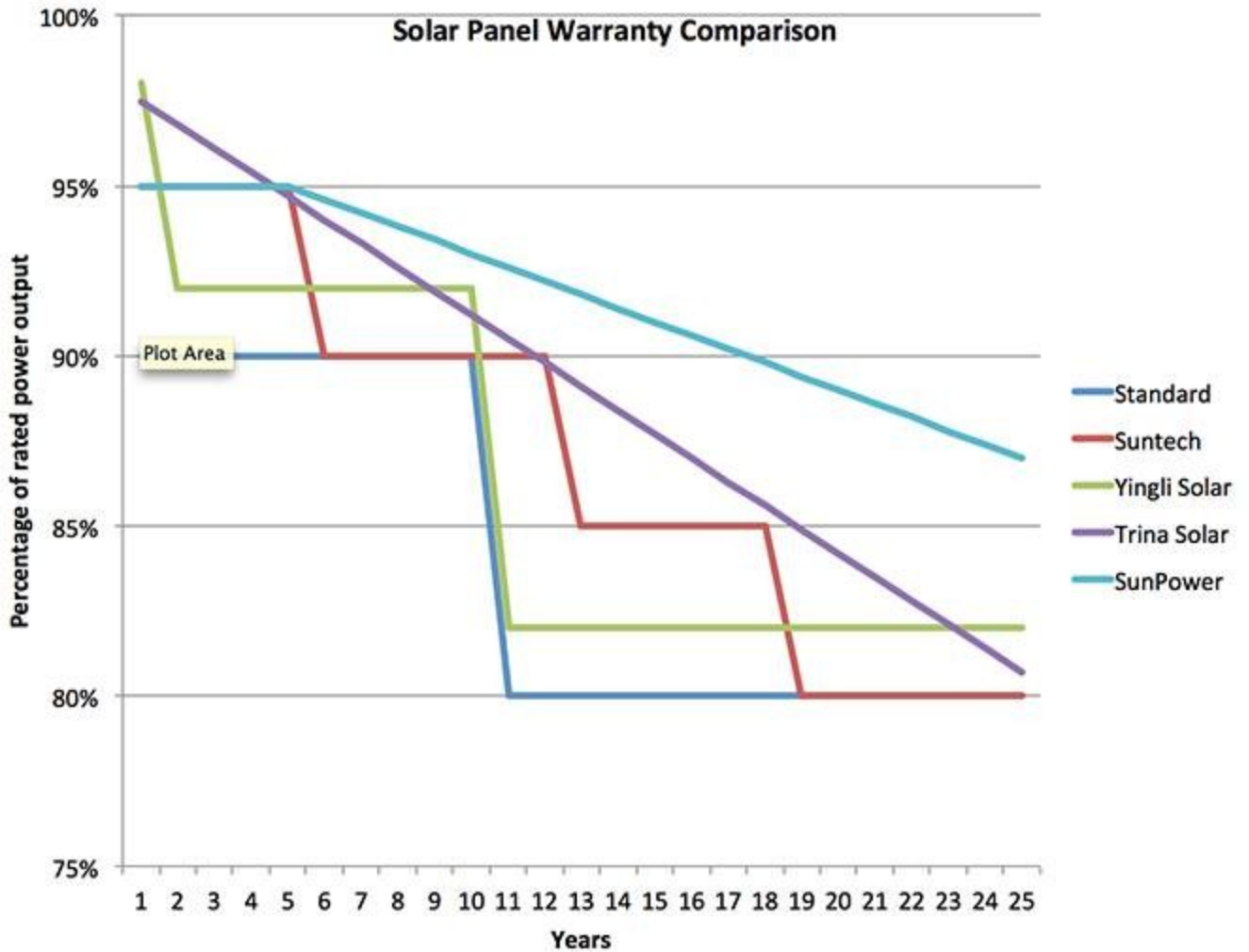
Solar cell type	Output loss in percent per year	
	Pre	Post
Amorphous silicon (a-Si)	0.96	0.87
Cadmium telluride (CdTe)	3.33	0.4
Copper indium gallium selenide (CIGS)	1.44	0.96
Monocrystalline silicon (mono-Si)	0.47	0.36
Polycrystalline silicon (poly-Si)	0.61	0.64

Pre and Post refer to installations prior to and post 2000. Data is taken from Photovoltaic Degradation Rates — An Analytical Review NREL.<sup>[1]</sup>

Solar panels typically degrade faster in the first couple of years of their life.

## What is the life expectancy of solar panels?

Below is a chart showing different solar panel warranties on the market today. The different manufacturers guarantees that the performance of their solar panels will stay above the following ranges:



The majority of manufacturers offer the 25-year standard solar panel warranty, which means that power output should not be less than 80% of rated power after 25 years.

For more information on solar panel warranties, go to [Solar Panel Warranty Comparison](#).

## What will happen to my solar panels after 25 years?

The truth is we don't really know – there's not really a lot of data to look at since photovoltaics is a relatively new technology (the vast majority of all solar panels are less than 10 years old). However, from what we are seeing so far, we have reason to be excited. Here are a couple of interesting reports:

- A 33W solar panel (Arco Solar 16-2000) actually outperformed its original factory specifications 30 years after it was manufactured.<sup>[2]</sup>
- World's first modern solar panel still works after 60 years.<sup>[3]</sup>

- Kyocera has reported several solar power installations that continue to operate reliably and generate electricity even though they are nearly 30 years old.<sup>[4]</sup>

The technology has improved, the solar panels on today's market are more robust and durable.

**This is where it gets really interesting. What does all of this actually mean?** The lifespan of a modern solar panel is far longer than the 20 years that we use to calculate costs and earnings. This basically translates into more money in your pocket.

**I would bet that a solar panel installed today would be up and running (and still generating a good amount of electricity) 30 – 40 years down the line.**

Note that batteries and inverters typically have to be replaced every 5 to 10 years.

## **What can I do to extend the life of my solar panels?**

- Avoid physical damage (e.g. trees and bushes blowing in the wind and creating scratches). The more surface scratches, the more performance degradation. In the worst-case, water can seep through the surface, which can short-circuit the solar panels.
- Regular maintenance and cleaning is important. For in-depth information on the subject, check out [Best Way to Clean Solar Panels](#).
- The more weather and wind the solar panels are exposed to, the faster they will degrade (e.g. think about shelter from the wind when evaluating placement).