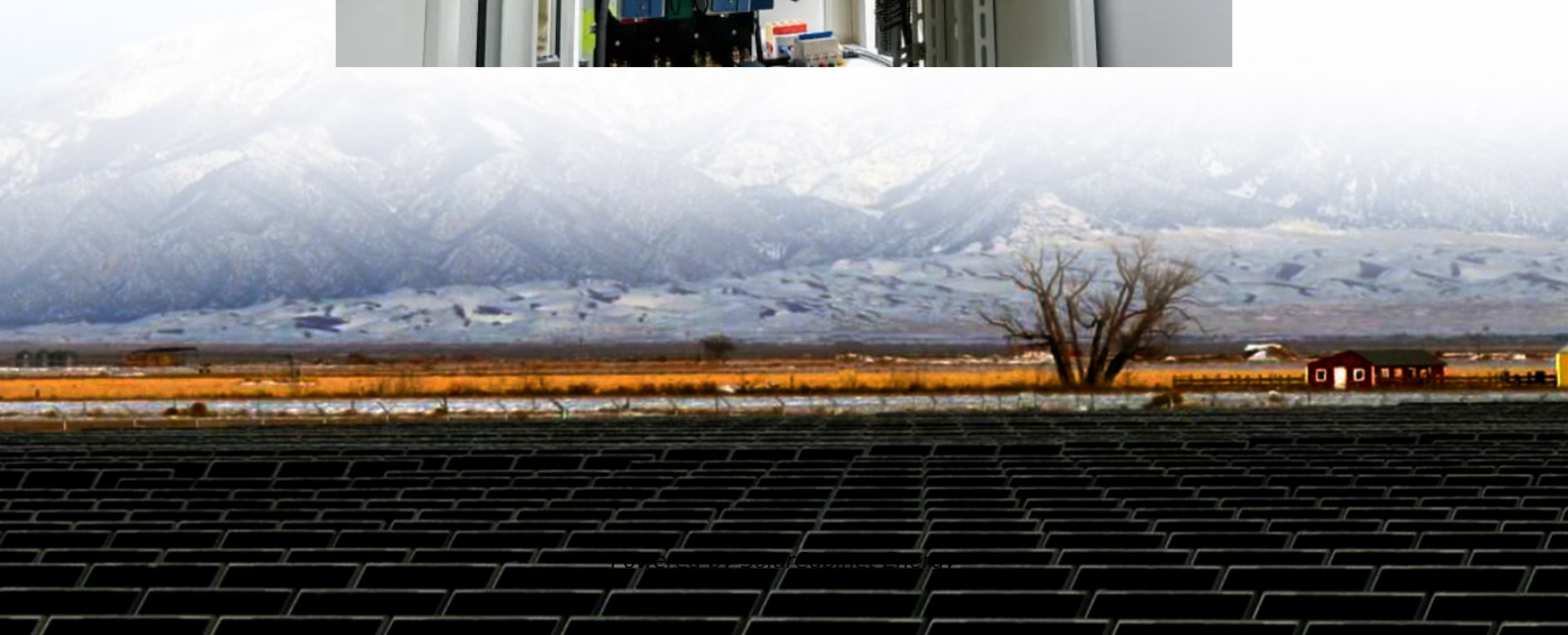


Solar panel technology is becoming thinner





Overview

Are thin-film solar panels better than conventional solar cells?

The thin-film solar cells weigh about 100 times less than conventional solar cells while generating about 18 times more power-per-kilogram. [Photo: Melanie Gonick/MIT] Solar adoption in the U.S. is booming, but how much more power would we be using if we could manufacture panels that are easier to install and lighter to transport?

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What are thin-film solar panels?

Thin-film solar panels use a 2nd generation technology varying from the crystalline silicon (c-Si) modules, which is the most popular technology. Thin-film solar cells (TFSC) are manufactured using a single or multiple layers of PV elements over a surface comprised of a variety of glass, plastic, or metal.

What are the pros and cons of thin-film solar panels?

Thin-film solar panels have many pros, while only holding a few cons to them. These are the most important pros and cons of this technology. Higher resistance to degradation. Lower thermal losses at extreme temperatures due to the low-temperature coefficient. Ideal for portable and BIPV applications.

Who invented thin-film solar panels?

The idea for thin-film solar panels came from Prof. Karl Böer in 1970, who recognized the potential of coupling thin-film photovoltaic cells with thermal collectors, but it was not until 1972 that research for this technology officially started.

What is the difference between crystalline silicon and thin-film solar panels?

There are many differences regarding crystalline silicon and thin-film solar panel technology. One important difference is how the temperature affects



the efficiency of each technology, c-Si solar cells are more affected by temperature than thin-film technologies.

How much does a thin-film solar cell cost?

The rated efficiency for GaAs thin-film solar cells is recorded at 29.1%. The cost for these III-V thin-film solar cells rounds going from \$70/W to \$170/W, but NREL states that the price can be reduced to \$0.50/W in the future.



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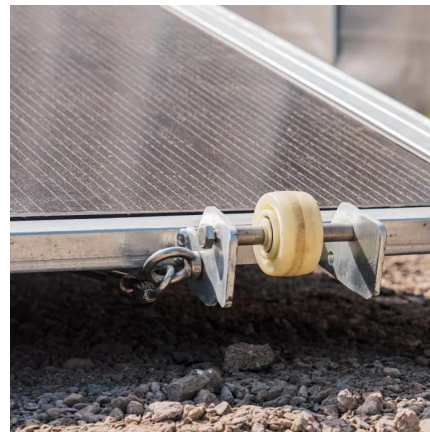


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