

# GE to Make Thin-Film Solar Panels

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Its entrance to the market could help make solar power cheaper.

By Kevin Bullis

GE has confirmed long-standing speculation that it plans to make [thin-film solar panels](#) that use a cadmium- and tellurium-based semiconductor to capture light and convert it into electricity. The GE move could put pressure on [the only major](#) cadmium-telluride solar-panel maker, Tempe, AZ-based [First Solar](#), which could drive down prices for solar panels.



**Light materials:** Cadmium telluride, a semiconductor that's good at absorbing light, can be used to make inexpensive solar panels.

Credit: GE

Last year, GE seemed to be getting out of the solar industry as it sold off crystalline-silicon solar-panel factories it had acquired in 2004. The company found that the market for such solar panels--which account for most of the solar panels sold worldwide--was too competitive for a relative newcomer, says Danielle Merfeld, GE's solar technology platform leader.

She says cadmium-telluride solar is attractive to GE in part because, compared to silicon, there's still a lot to learn about the physics of cadmium telluride, which suggests it could be made more efficient, which in turn can lower the cost per watt of solar power. It's also potentially cheaper to make cadmium-telluride solar panels than it is to make silicon solar cells, making it easier to compete with established solar-panel makers. Merfeld says GE was encouraged by the example of [First Solar](#), which has consistently undercut the prices of silicon solar panels--and because of this has quickly grown from producing almost no solar panels just a few years ago to being one of the world's largest solar manufacturers today.

GE will work to improve upon cadmium-telluride solar panels originally developed by [PrimeStar Solar](#), a spin-off of the Renewable Energy Laboratory in Golden, CO. GE acquired a minority

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stake in the company in 2007, and then a majority stake in 2008, but it didn't say much about its intentions for the company until last week, when it announced that it would focus its solar research and development on the startup's technology.

"It definitely makes sense that they would avoid silicon at this stage," says Sam Jaffe, a senior analyst at IDC Energy Insights in Framingham, MA. Especially in the last year, the market for silicon solar panels has been extremely competitive, with companies making little or no profit. "There's a lot more space to wring profits out of making cadmium telluride."

GE appears to be shying away from [newer thin-film solar technology](#) based on semiconductors made of copper, indium, gallium, and selenium (CIGS). Merfeld says that it is uncertain how well that material can perform at the larger sizes and volumes needed for commercial solar panels. Cadmium telluride is a simpler material that's much easier to work with than CIGS, which makes it easier to achieve useful efficiencies in mass-produced solar panels.

Merfeld says GE hopes to compete with First Solar by offering higher performance solar cells and reducing the overall cost of solar power. In addition, its name recognition could encourage installers to buy its panels and could help secure financing of solar projects from banks. GE also has extensive distribution networks, especially for new construction, says Travis Bradford, president of the Prometheus Institute for Sustainable Development, a consultancy in Chicago.

Yet challenges remain. Tellurium is a rare material, so to keep its costs down, it will be important for GE to secure large supplies of tellurium rather than buying it on the open market, Jaffe says. He says having another large manufacturer of tellurium-based solar panels may make it necessary to discover new sources of the element.

What's more, First Solar has a large lead on GE in terms of its experience manufacturing cadmium telluride and finding ways to bring down prices. It could be challenging to even get close to First Solar's costs. "If GE wants to get into photovoltaics, the crystalline silicon boat already sailed," Bradford says. "The problem is that the thin-film boat may have as well, particularly for cadmium telluride."

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