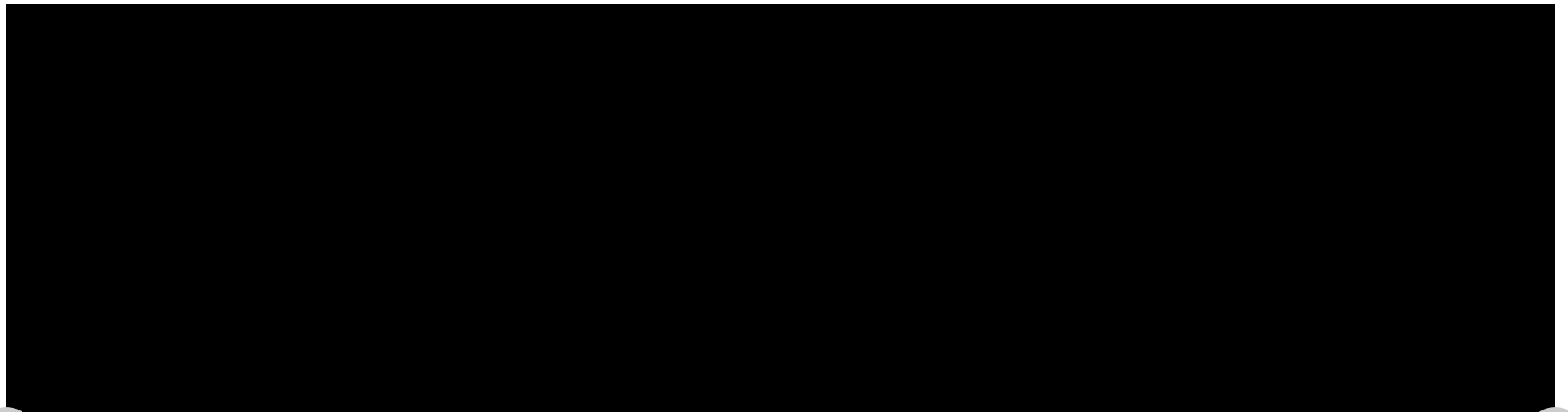


12.19.16

# This Startup Uses A Particle Accelerator To Make Solar Panels Much, Much Cheaper

The process makes them cheaper and more efficient—and could hasten the end of coal.





1/9 Using a particle accelerator—which speeds up sub-atomic particles to nearly the speed of light—Rayton Solar slices up precise pieces of silicon.

**BY ADELE PETERS** 2 MINUTE READ



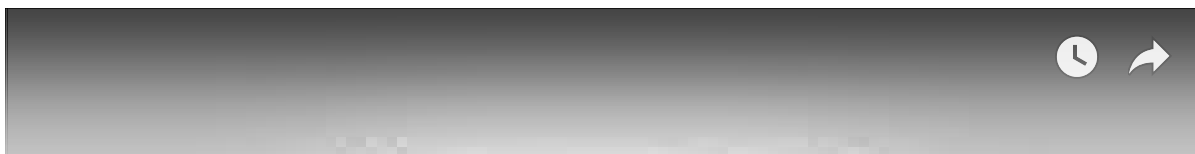
The cost of solar panels is dropping exponentially, and solar power is now 80% cheaper than it was in 2010. A new startup plans to make it even more of a threat to fossil fuels, while also making panels much more efficient.

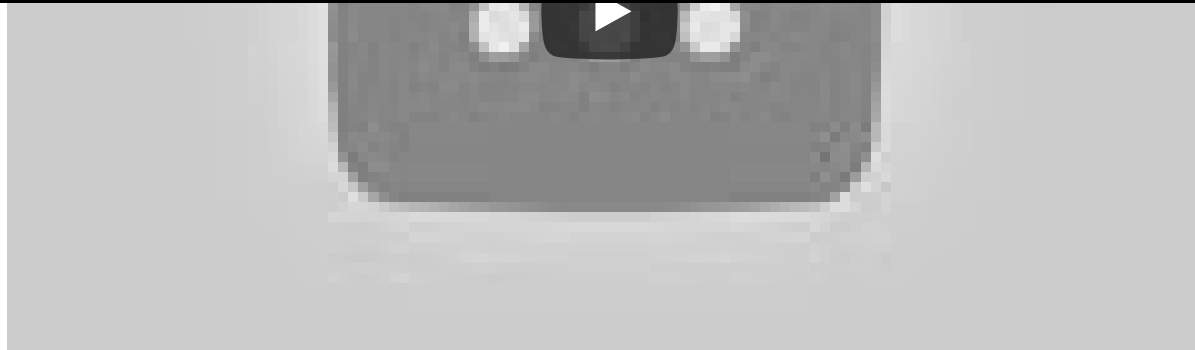
Using a particle accelerator—a machine that speeds up sub-atomic particles to nearly the speed of light—[Rayton Solar](#) slices up ultra-precise pieces of silicon, the key material used to make most solar panels. In typical manufacturing, a clunky cutting process wastes much of the material. When making a 200 micron-thick wafer of silicon, another 200 microns of the material ends up as sawdust.



The new patented process eliminates that waste. “Once you have a certain energy level of the particle and you shoot it at a block of silicon, it will penetrate at a certain depth into that silicon,” says Andrew Yakub, Rayton Solar’s 29-year-old CEO. “That’s how we do our cutting at such a precise depth.”

Don’t trust us? Bill Nye explains more in this video.





By preserving the material, Rayton is able to use higher-quality silicon—something that wasn't economic for companies to do in the past. The new panels are 25% more efficient. That leads to a reduction in other costs—less land is needed, and less other equipment. And the panels themselves are also 60% cheaper to manufacture.

That dramatic drop in cost could help the solar industry grow much faster than it already is. Rayton has proven the process in the lab, and is currently running an [equity crowdfunding campaign](#) to build a pilot manufacturing line (it plans to do this in the U.S.; the low cost of the new process makes it economic to build here). Then it plans to quickly scale.

limit and allow for the widescale adoption worldwide of solar. It would be the economic solution anywhere you are. We see this happening with or without Rayton's technology. But our technology will speed it up significantly."

It's something that will happen, he says, whether or not the next administration supports renewable energy. "In regards to Trump, I see him not having an effect on the solar industry," he says. "Because the economics are there. If the economics are there, the natural market forces will take control. I don't see it as something that the government can have much control of."

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#### ABOUT THE AUTHOR

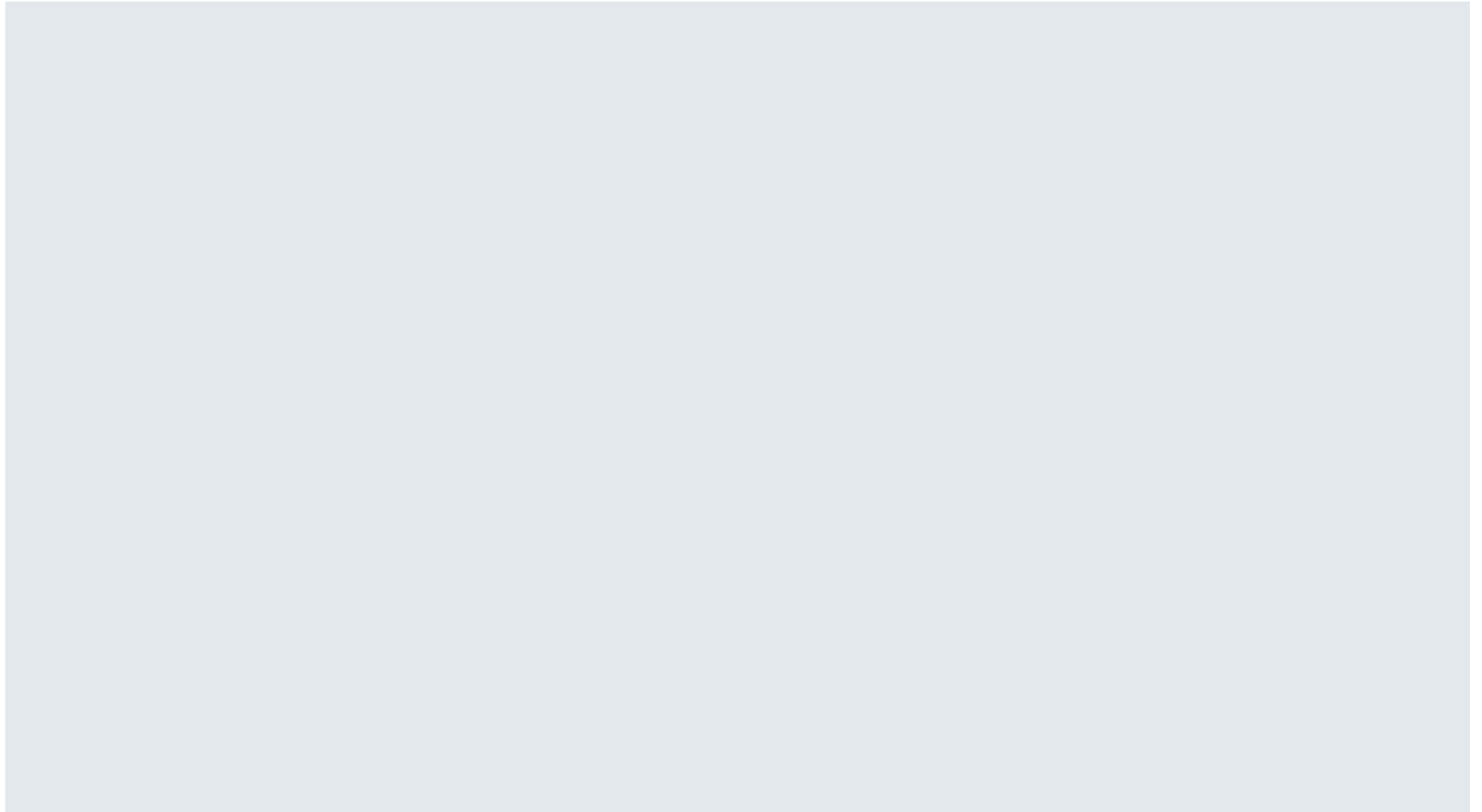
Adele Peters is a staff writer at Fast Company who focuses on solutions to some of the world's largest problems, from climate change to homelessness. Previously, she worked with GOOD, BioLite, and the Sustainable Products and Solutions program at UC Berkeley. [More](#)

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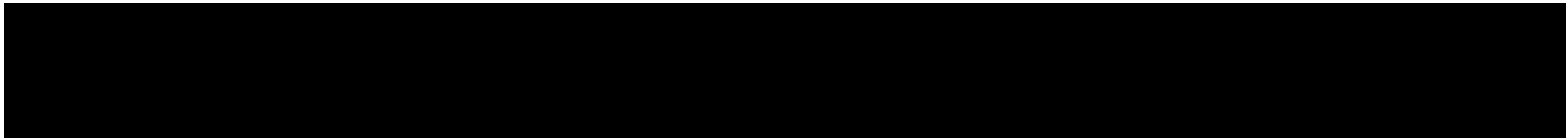
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