<https://www.nature.com/articles/d41586-019-00629-5>

# China sets sights on first solar power stations in space

## The country has a plan to overcome the challenges experienced by other nations.

20 February 2019

**NEWS**

### David Cyranoski

&amp;lt;img class="" alt="The dark region seen on the face of the sun" src="//[media.nature.com/w800/magazine-assets/d41586-019-00629-5/d41586-019-00629-5\_16490450.jpg](http://media.nature.com/w800/magazine-assets/d41586-019-00629-5/d41586-019-00629-5_16490450.jpg)"&amp;gt;

China wants to capture the Sun's energy in space and beam it back to Earth.Credit: NASA/SDO/AIA

China wants to be the first country to launch power stations into space that capture the Sun’s energy and beam it back down to Earth, [Chinese state media reported last week](http://news.sciencenet.cn/htmlnews/2019/2/422910.shtm).

The advantage of space-based stations is that they could catch the Sun’s energy before some of it dissipates in the atmosphere. They would also be a more stable energy source than ground-based stations because they could avoid fluctuations due to weather, seasons or night.

The idea of space-based solar power stations has been around for [decades](https://www.nature.com/news/2008/080916/full/news.2008.1109.html), and scientists in the United States and [Japan](https://www.nature.com/news/2009/091125/full/462398b.html) have been working on proof-of-principle technologies. But the cost of launching massive industrial-scale stations, which could weigh up to 1,000 tonnes, is a major obstacle.

China is considering using 3D printing to create and construct stations in space to avoid launching the hefty weight.

The power stations would work by using photovoltaic cells to capture solar energy that is then transferred to antennas that transmit microwaves or radar to Earth. Receiving stations then convert the microwaves into electricity, which could be used to power electric cars, according to state media.

A facility to test the concept of the solar plant project is under construction in Chongqing in central China. The country hopes to have a series of small or medium-sized stations that orbit 36,000 kilometres above Earth between 2021 and 2025.

*doi: 10.1038/d41586-019-00629-5*

**Sign up for the daily *Nature Briefing* email newsletter**

Stay up to date with what matters in science and why, handpicked from *Nature* and other publications worldwide.