

Study shows pollution dramatically reducing solar power generation in China

9 July 2019, by Bob Yirka



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An international team of researchers has found that air pollution in China is dramatically reducing the amount of power that is generated by solar cells in that country. In their paper published in the journal *Nature Energy*, the group describes studying data from solar observational stations over the past several decades and what they found.

China currently leads the world in solar energy production—the country produced 170 gigawatts of power at the end of last year. And the country has plans to add a lot more. But according to the new study, China is not realizing the full potential of its [solar installations](#) due to [air pollution](#)—particles in the air block some of the solar radiation.

To find out how much of an impact air pollution has on solar production in China, the researchers obtained data from 119 solar measuring stations across the country going all the way back to 1960. They also collected data on [black carbon](#) and sulfur dioxide emissions for the same period as a way to make sure that any reductions in solar radiation they found came from air pollution rather

than climate change.

The researchers were able to work out how much less solar radiation was reaching the ground over the years 1960 to 2015. They then compared solar radiation levels with solar energy installations and production. Doing so allowed them to see just how much less power was being produced due to air pollution. They report that in 2016, China produced 14 terawatt hours less than it could have were pollution levels the same as they were in 1960. They further report that because China is planning to triple its solar energy production by 2030, the country could be losing out on 74 TWh a year, if pollution levels hold steady. They note also that at 2016 rates, the country lost out on \$1.9 billion worth of electricity that year—and that could rise to \$6.7 billion by 2030.

The researchers also found that measures taken by the government in recent years to reduce air pollution have had a small impact on diminishing [solar radiation](#)—they describe it as a "minor reversal" for the years 2010 to 2015.

More information: Bart Sweerts et al. Estimation of losses in solar energy production from air pollution in China since 1960 using surface radiation data, *Nature Energy* (2019). [DOI: 10.1038/s41560-019-0412-4](https://doi.org/10.1038/s41560-019-0412-4)

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