**Solar could provide 25% of the world’s energy by 2050**

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Much of the solar conversation in America this year has been focused on market forces slowing growth. While the first half of 2018 has been sluggish, this downtime is merely a speed bump in the sustained growth of the industry. As US solar activity regains momentum in the second half of the year, it is important to understand how the US fits into the global renewable energy industry. In many countries, you will find solar as the largest source of new electricity generation being installed. Here are a few examples of how solar is deployed around the world:

1. It would be difficult to describe the global solar economy without mentioning Germany’s success story. For context, this is a country that receives less than half the sunlight as the state of Arizona. Even despite the overcast weather, last Christmas German citizens essentially got paid to use electricity because its clean energy produced outweighed the country’s demand. So how did Germany get to this point? In [1991,](https://www.triplepundit.com/2015/08/germany-became-solar-superpower/) politicians passed the Renewable Energy Sources Act. Among other factors, this act secured a market for solar and wind by requiring utilities to use them. By the late 1990s, China saw the opportunity to help meet German demand through manufacturing the most expensive aspect of solar power, the photovoltaic module. The common denominator to any country growing its solar capacity is government support.
2. China is now the biggest market for new solar generation. The country installed 53GW in 2017 and accounts for 54% of global demand. China reached their target to reduce CO2 emissions per unit of GDP by 45% three years early and are now beginning to roll back subsidies. Analysts are forecasting another big year in 2018 for Chinese solar installations followed by a stabilization around [35GW](https://www.pvbuzz.com/china-solar-market-slowdown/) per year going forward. To put this volume in perspective, the US is second behind China in new solar generation with 10.6 GW installed last year. China installed five times as much solar as the US last year. A vertically integrated system of manufacturing the PV modules and installing them domestically lead to market dominance.
3. Another big player, [India](https://www.energydigital.com/renewable-energy/india-could-benefit-chinas-halt-solar) is well positioned to benefit from a reduction in Chinese demand. India plans to reach 100GW of solar capacity by 2022. Last year, solar projects accounted for almost 40% of [new energy](https://www.renewableenergyworld.com/articles/2018/03/india-has-a-new-secret-weapon-for-its-solar-goal.html) generation capacity added in India. Manufacturing plants that have adapted to immense Chinese demand should have a surplus in PV modules with China’s slowed growth. Excess supply could mean lower prices for nearby countries like India looking to add more solar power. Another booming solar market is in [Australia](https://www.theguardian.com/australia-news/2018/feb/11/australias-solar-power-boom-could-almost-double-capacity-in-a-year-analysts-say) where there has been over 7GW of solar capacity added as of the end of 2017. Australia aims to double that figure in 2018 alone.
4. Saudi Arabia, the leader of OPEC sees the value of solar power. The country is investing [$200 billion](https://www.globalcitizen.org/en/content/saudi-arabia-solar-energy-200-billion-investment/) in solar power over the next several years in pursuit to install 200GW. New solar generation is cost competitive enough for traditional oil behemoths to bet on its future. Oil companies such as [BP and Shell](https://www.theguardian.com/business/2018/feb/06/bp-aims-to-invest-more-in-renewables-and-clean-energy) have joined the energy revolution as well, each investing billions into renewables. It is a great sign for continued growth of the industry when its competitors, fossil fuel organizations, are investing in it.
5. There are many other countries worth mentioning, a few of which are Japan, Australia, South Korea, France, and Mexico. Currently, there are 8 Gigawatt-scale solar [markets](https://www.greentechmedia.com/articles/read/global-solar-pv-installations-to-surpass-104-gw-in-2018#gs.FxvJf=s) in the world and analysts are forecasting this number to almost triple to 22 by 2022. Similarly to how investors diversify their portfolios to mitigate risk, countries are adding solar to their energy portfolios to improve energy independence and reliability.

We saw Germany invest in solar while it was still quite expensive. When China began manufacturing the PV modules at a large scale, the price of installations fell immensely. Now that the price has come down, we are seeing countries all over the world add solar power capacity. So how much does solar cost? Because of the variability of the sun and different geographical factors, there is not one simple answer. The levelized cost of electricity (LCOE) is a good way to compare energy sources because it accounts for the total generation and total expenditures over the lifetime of a system. Some places see a levelized cost of solar at as low as [$.04/kWh](https://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf). At this price, solar makes just as much sense as traditional sources like coal and nuclear. The remaining hurdle for renewables will be to add storage so that the power plants can generate electricity when the sun is not shining or wind not blowing. The majority of solar projects in the development pipeline are now being paired with storage solutions. These are a few of the reasons that the International Energy Agency projects that by 2050 the world could be getting over 25% of its energy from solar [power](https://www.iea.org/newsroom/news/2014/september/how-solar-energy-could-be-the-largest-source-of-electricity-by-mid-century.html).