

Issue Overview: Solar energy

By Bloomberg, adapted by Newsela staff on 09.15.16

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TOP: Solar panels are pictured in California in October 1996. Photo by Raphael Gaillarde. BOTTOM: Graphics by Solar Energy Industries Association.

The idea that solar power may soon be everywhere is not as implausible as it used to be. Photovoltaics, or solar panels, are flat surfaces that generate electricity from light. In just the past five years, the price of solar panels has gone down by 80 percent. Over the last 10 years, the electric output of solar panels has increased by 40 percent each year. The solar industry is drawing roughly \$150 billion in annual funding. This is half the total amount committed to renewable energy. In some places, the cost of solar is already able to compete with that of fossil fuels like carbon, coal and gas.

Even so, the idea that solar could soon meet the energy needs of the world is not very likely. For one thing, the increases mentioned earlier are still relatively small. In 2013, solar made up less than 2 percent of the world's electricity supply.

This is not the only hurdle. Since people like their power to always be available, a big problem is keeping the power grid active when it's dark and cloudy. It's important to figure out how to make the system produce electricity without interruptions. The outlook for solar power might therefore not be so shiny.

The Situation

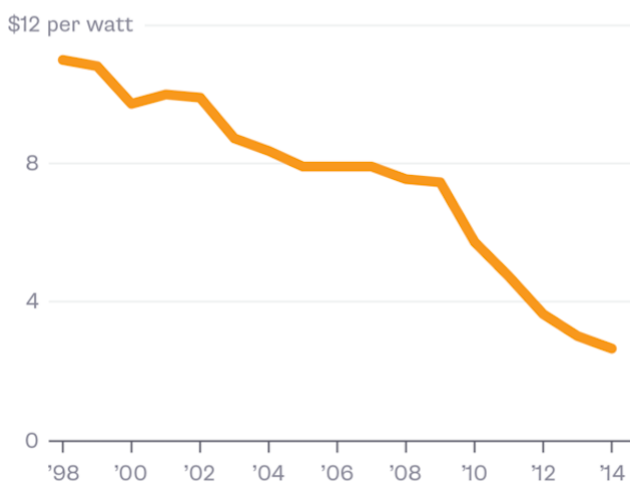
Energy generated by solar grew by a third in 2015, more than for any other power source. The global agreement reached in Paris, France, in December on fighting climate change didn't refer to solar specifically. However, it is believed the deal will encourage significant funding.

The U.S. Congress reached a budget deal that extended tax credits for wind and solar power for five years. In other words, solar companies will continue to pay less in taxes to the government. Bloomberg New Energy Finance, a research group that studies policy and economics, made an estimate of how much companies will save. Their estimate is \$38 billion.

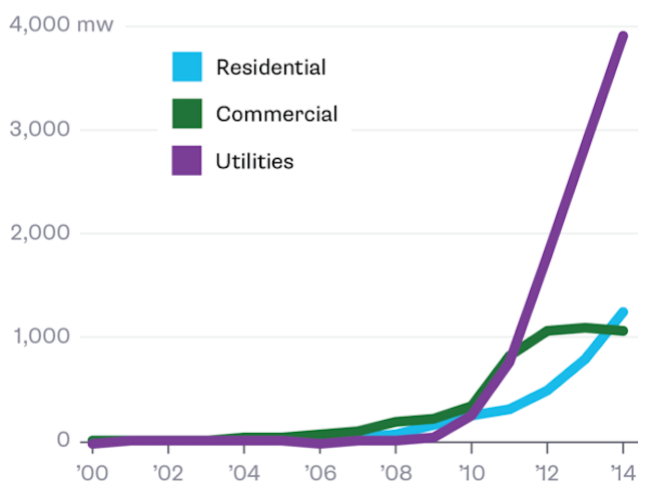
Already, 43 of the 50 states have set goals for renewable power. California's target is 50 percent of power by 2020. China has installed the most renewable power plants, followed by Japan. In India, plans have been announced for \$160 billion in solar power projects. Some big businesses have made splashy announcements, including Apple's plan to spend \$850 million on solar power.

Here Comes the Sun

Average solar system cost in the U.S.



U.S. photovoltaic capacity, by sector



The Background

The first photovoltaic cell was made by AT&T's Bell Labs in New Jersey in 1953. For years, solar technology was not distributed commercially. Oil companies led by Exxon and Arco began investing in photovoltaic cells because of rising oil prices in 1973. But they backed out once the price of crude oil crashed 10 years later.

Japan kept the industry alive through the 1990s. In 2004, Germany decided to provide more funding for energy plants whose cost of generation is higher. Since this applies to photovoltaics, the business of solar energy soared. For several years Germany led the

world in solar panel manufacturing, and their model was copied in other countries. Eventually, more producers of solar energy started competing with each other. The result was a huge price drop, and companies were forced to close.

As a result, the industry shifted to China. There, companies led by Suntech Power built giant panel factories with loans from the government and cash from foreign investors. The support allowed them to outlive many companies that had shut down elsewhere.

The Argument

The environmental group Greenpeace says solar “could meet the world’s energy demands many times over.” The International Energy Agency is a bit more cautious. It says that photovoltaics might generate 16 percent of the world’s electricity by 2050. Supporters of fossil fuels say photovoltaic power will never be a practical source of energy. It can’t work when the sun doesn’t shine and it’s too expensive, they say.

The biggest question is ultimately political. The future of solar depends on which countries are willing to pay now. In the long run, solar energy may be cheaper and will undoubtedly be cleaner. The Paris agreement suggests that many countries are willing to take on this project. And all worries could be resolved if there’s a breakthrough in solar’s biggest weakness: an affordable way to store electricity for use at night.