

TECH TACTICS

Plummeting Price of Solar Power

Inexpensive solar disrupts traditional power producers.

Solar power is the cheapest source of new electricity globally. In April 2021, the world record low bid of 1.0¢ per kWh of solar power was announced for 600MW of solar power in Saudi Arabia — that is enough energy to power 100,000 homes. Power Purchase Agreements (PPA) are for 20 or more years and include both capital and operating costs.

This is bad news for traditional power producers globally. It costs more than a cent to run an existing gas, coal or nuclear power plant. In other words, the combined capital (CAPEX) and operating (OPEX) expense of some solar is now cheaper than the operating expenses of traditional power plants. According to the International Energy Agency (IEA), the cost to operate nuclear power plants are two to five cents per kWh; for coal it is two

to four cents; and for natural gas it is between four and ten cents.

Solar and wind power are the cheapest source of electricity for two thirds of the world's population, according to Bloomberg New Energy Finance (BNEF). The economies in these countries represent 72% of the world's GDP and 85% of global power demand.

Looking back, the price of solar power has plummeted from \$77 per Watt in 1977 to just 12¢/Watt in 2020. This stunning decline of 640X is head spinning. Solar power has been declining in cost 18% annually since 2010.

Most traditional electricity utilities have been slow to embrace solar. In 2000, the IEA predicted that the world would have installed a total of 18 Gigawatts (GW) of solar capacity by 2020. The IEA is the body that advises world governments and electric utilities on future trends. By the end of 2020, the world had installed just shy of 900 GW of solar power. The decline in solar prices has driven cumulative solar installations surpassing what the IEA predicted.



Wright's Law

Wright's Law states that for every cumulative doubling of units produced, costs will fall by a constant percentage. Think of it as the law of learning, or the experience curve. For solar power it works out to a 30% decline in cost for each doubling of cumulative production. As solar installations continue to be built, costs will decline, resulting in even more solar installations.

Here is a staggering statistic: more energy falls on the earth from the sun in a single hour than all energy used in all countries in an entire year.

According to a new report released by Carbon Tracker in April of 2021, by the mid 2030s, solar and wind power will have pushed fossil fuels (coal, oil, and gas) completely out of the electricity sector. Given the rapid rise in electrification of the \$10 trillion transportation market, fossil fuels will be pushed out of transportation as well.

It appears the decade of disruption for electric utilities will be between 2020 to 2030. ■

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PLUMMETING PRICE OF SOLAR POWER
640X CHEAPER OVER 43 YEARS (\$/WATT)

