



SOLAR: THE MOST AFFORDABLE ENERGY SOURCE ON THE GLOBAL MARKET

1.

SOLAR PANEL PRICES DECREASED BY 96% SINCE 2000

It's the steepest cost reduction across all energy technologies.

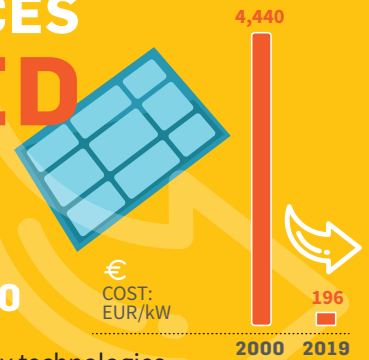


FIGURE : Module price (inflation adjusted) in 2000 and 2019, EUR/kW. SOURCE: Fraunhofer ISE, 2019; EnergyTrends, 2019.

2.

LOW COST SOLAR IS ACCESSIBLE FOR ALL

Solar is the lowest-cost option to fight energy poverty.



€ COST: EUR/MWh

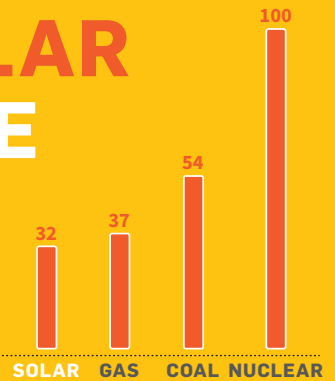


FIGURE : Solar electricity generation cost (low end) in comparison with conventional power sources, EUR/MWh. SOURCE: EY & SolarPower Europe, 2017.

3.

TODAY, SOLAR COULD POWER THE WORLD

USING ONLY

0.16% OF GLOBAL LAND SURFACE

AREA NEEDED TO COVER THE WORLD'S TOTAL POWER DEMAND WITH SOLAR



FIGURE: Area needed to cover 2018's total global power demand with solar compared to the world's land surface. SOURCE: Own elaboration, based on IEA, 2019; IRENA, 2019.



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1.

SHARP DECREASE IN THE COST OF SOLAR PANELS

The rapid fall in the cost of solar panels has accelerated the market deployment of solar technology. In 2000, the price of a solar panel was in the range of 5,000 EUR per kilowatt (kW) whereas today, it has dropped dramatically to a mere 196 EUR per kW.

The cost of solar panels continues to decline thanks to a combination of decreased manufacturing costs and increased cell and module performance. Economies of scale, alongside technological improvements, have led to significant savings. Improvements in efficiency at each stage of the lifecycle have already contributed significantly to stronger solar competitiveness and is expected to continue to do so in the future.

2.

A CLEAN, COMPETITIVE ENERGY SOURCE

The global levelised cost of electricity (LCOE) for utility-scale solar has dropped massively over the last ten years, from 0.32 EUR per kilowatt hour (kWh) in 2009 to less than 0.04 EUR per kWh in 2018. This constitutes a 90% decrease in cost, driven mainly by a decline in the pricing of system components, improvements in efficiency, and contract standardisation. While the price of solar has continued to decrease, the cost of conventional energy sources has remained the same or even increased. As a result, today, large-scale solar is cheaper than any fossil fuel or nuclear source. Even without taking into account the environmental cost of fossil fuel usage or nuclear waste management, it is more profitable to invest in solar as one of the most affordable sources of energy.

Solar truly has a bright future ahead, with manufacturing and component costs expected to reduce further. This will drive down the cost of solar electricity, with the global LCOE for utility-scale solar expected to be below 0.02 EUR per kWh in the long run – this is already the new benchmark for tenders in the Middle East and other regions with ideal investment conditions.

3.

WE ONLY NEED TO COVER 0.16% OF GLOBAL LAND SURFACE WITH SOLAR TO POWER THE ENTIRE WORLD

Land surface is not a factor when considering whether solar could evolve to take the largest share of the global energy mix. In fact, a solar area equal to only 0.16% of the world's land surface would provide a sufficient energy supply to meet the current total global electricity demand.

In reality this share is likely to be much lower, considering that solar, as a flexible technology, can be applied virtually anywhere – not only on rooftops and ground installations, but also on façades, water surfaces, vehicles and much more. Building-integrated installations and floating solar are already established technologies. Improvements in cell and module efficiencies expected in the future are going to further decrease the area needed for deploying solar energy on a multi-terawatt scale.

REFERENCES

EnergyTrend (2019). Price Trend: Market Conditions at Home and Abroad Are at Odds due to the New Tax System and Exchange Rate Changes. Available at: <https://www.energytrend.com/pricequotes/20190328-13637.html>

Fraunhofer ISE (2019). *Photovoltaics Report*. Available at: <http://www.ise.fraunhofer.de/de/downloads/pdf-files/aktuelles/photovoltaics-report-in-englischer-sprache.pdf>

IEA (2019). *Global Energy and CO₂ Status Report (2nd Edition)*. Available at: <https://webstore.iea.org/global-energy-co2-status-report-2018>

IEA-PVPS (2018). *Trends 2018 in Photovoltaic Applications (23rd edition)*. Available at: http://www.iea-pvps.org/fileadmin/dam/intranet/task1/IEA_PVPS_Trends_2018_in_Photovoltaic_Applications_03.pdf

IRENA (2019). *Capacity Statistics 2019*. Available at: https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Mar/IRENA_RE_Capacity_Statistics_2019.pdf

ITRPV (2019) *International Technology Roadmap for Photovoltaic (ITRPV): 2018 Results (10th Edition)*. Available at: <https://itrpv.vdma.org/documents/27094228/29066965/ITRPV%302019.pdf/78cb7c8c-e91d-6f41-f228-635c3a8abf71>

Lazard (2018). *Lazard's Levelized Cost of Energy Analysis – version 12.0*. Available at: <https://www.lazard.com/media/450784/lazards-levelized-cost-of-energy-version-120-vfinal.pdf>

National Renewable Energy Laboratory (NREL) (2017). *U.S. Solar Photovoltaic System Cost Benchmark: Q1 2017*. Available at: <https://www.nrel.gov/docs/fy17osti/68925.pdf>