



Cheap renewable energy sources

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Of the wind, solar and other renewables that came on stream in 2020, nearly two-thirds - 62% - were cheaper than the cheapest new fossil fuel, according to the International Renewable Energy Agency (IRENA).

Retiring costly coal plants would also stop the emission of about three gigatonnes of CO₂ a year - 20% of the reduction in emissions needed by 2030 to avert climate catastrophe.

Solar photovoltaics (PV) - the conversion of light into electricity using semiconducting materials - saw project costs fall by 7%. IRENA reported that the cost of electricity from utility-scale solar PV plunged 85% in the decade to 2020.

The report follows the International Energy Agency's (IEA) conclusion in its World Energy Outlook 2020 that solar power is now the cheapest electricity in history. The technology is cheaper than coal and gas in most major countries, the outlook found.

Another IEA study, Net Zero by 2050, reports that carbon neutrality is possible by 2050 - but only with big changes. This includes huge cuts in the use of coal, oil and gas - and substantial investment in renewables.

The World Economic Forum collaborated with the IEA and the World Bank to produce Financing Clean Energy Transitions in Emerging and Developing Economies, a special report on renewables investment.

Energy consumption and production contribute to two-thirds of global emissions, and 81% of the global energy system is still based on fossil fuels, the same percentage as 30 years ago. Plus, improvements in the energy intensity of the global economy (the amount of energy used per unit of economic activity) are slowing. In 2018 energy intensity improved by 1.2%, the slowest rate since 2010.

Benchmarking progress is essential to a successful transition. The World Economic Forum's Energy Transition Index, which ranks 115 economies on how well they balance energy security and access with environmental sustainability and affordability, shows that the biggest challenge facing energy transition is the lack of readiness among the world's largest emitters, including US, China, India and Russia. The 10 countries that score the highest in terms of readiness account for only 2.6% of global annual emissions.

To future-proof the global energy system, the Forum's Centre for Energy & Materials is working on initiatives including Clean Power and Electrification, Energy and Industry Transition Intelligence, Industrial Ecosystems Transformation, and Transition Enablers to encourage and enable innovative energy investments, technologies and solutions.

Additionally, the Mission Possible Partnership (MPP) is working to assemble public and private partners to



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further the industry transition to set heavy industry and mobility sectors on the pathway towards net-zero emissions. MPP is an initiative created by the World Economic Forum and the Energy Transitions Commission.

A report published by the International Renewable Energy Agency (IRENA) earlier this year found that the cost of renewables is falling at such a rapid rate that it will be a consistently cheaper electricity source than traditional fuels in only a few years" time, posing a mounting threat to the fossil fuel industry.

The IRENA Renewable Power Generation Costs in 2017 report found that solar and onshore wind are the cheapest energy sources, reporting that in 2017 wind turbine prices had an average cost of \$0.06 per kWh, though some schemes were \$0.04 per kWh. The cost of solar photovoltaic (PV) had fallen to \$0.10 per kWh.

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