

Renewable energy power plants

China sees renewables as a source of energy security and not just only to reduce carbon emission.⁷ China's Action Plan for the Prevention and Control of Air Pollution issued by China's State Council in September 2013, illustrates the government's desire to increase the share of renewables in China's energy mix.⁸ Unlike oil, coal and gas, the supplies of which are finite and subject to geopolitical tensions, renewable energy systems can be built and used wherever there is sufficient water, wind, and sun.⁹

Renewable electricity generation in China by source in TWh:

As of year end 2021 hydroelectric power remains by far the largest component of renewable electricity production at 1,340 TWh. Wind power provided the next largest share with 655 TWh, followed by solar at 327 TWh, subsequent to rapid growth from a low base of just 152 GWh in 2008. The overall share of electricity generated from renewable sources based on the figures in the above table has grown from a little over 17% in 2008 to a little over 27.7% by 2021. Solar and wind power continue to grow at a rapid pace.

By the end of 2019, the country had a total capacity of 790 GW²³ of renewable power, mainly from hydroelectric, solar and wind power. By the end of 2019, China's hydropower capacity reached 356 GW.²⁴ China's installed capacity of solar power reached 252 GW and wind power capacity was 282 GW, as of 2020.²⁵²⁶

By 2020, installed power for hydropower, wind, solar and biomass had increased to 385 GW, 299 GW, 282 GW and 35.34 GW, respectively.¹

As of 2020, China had more than 150 dams with generating capacity of more than 300 megawatts and installed capacity of 369 gigawatts.²⁷⁵⁸²⁰³²⁰²

As of 2021, China operates four of the world's six largest dams.²⁷⁵⁸²⁰¹²⁰² These include the world's biggest (Three Gorges Dam, with 22.5 gigawatts capacity) and second biggest (Baihetan Dam).²⁷⁵⁸²⁰¹²⁰²

China has the largest wind resources in the world and three-quarters of this natural resource is located at sea.²⁹ Per its 13th Five-Year Plan, China aimed to have 210 GW of wind power capacity by 2020.³⁰ It exceeded that goal, reaching 276 GW of onshore wind power by the end of 2020.¹⁰⁵⁸³³²⁰²

China encourages foreign companies, especially from the United States, to visit and invest in Chinese wind

power generation. However, use of wind energy in China has not always kept up with the remarkable construction of wind power capacity in the country.

By 2009 China had total installed windpower capacity up to 26GW. China has identified wind power as a key growth component of the country's economy.

As of 2010, China has become the world's largest maker of wind turbines, surpassing Denmark, Germany, Spain, and the United States. The initial future target set by the Chinese government was 10GW by 2010, but the total installed capacity for wind power generation in China had already reached 25.1GW by the end of 2009.

In September 2019, Norwegian energy firm Equinor and state-owned China Power International Holding (CPIH) announced their plan to cooperate in developing offshore wind in China and Europe.

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