Renewable capacity statistics 2023

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The International Renewable Energy Agency (IRENA) produces comprehensive, reliable datasets on renewable energy capacity and use worldwide. Renewable energy statistics 2023 provides datasets on power-generation capacity for 2013-2022, actual power generation for 2013-2021 and renewable energy balances for over 150 countries and areas for 2020-2021.

Data was obtained from a variety of sources, including an IRENA questionnaire, official national statistics, industry association reports, consultant reports and news articles. Major trends in the sector worldwide are outlined in the accompanying brief, Renewable energy highlights.

The yearbook also includes statistics on investments in renewables, compiled from the OECD-DAC database and 20 major multi-lateral, bilateral and national development financial institutions, spanning 2012-2021. The investment data is presented in millions of United States dollars (USD million) at 2020 prices.

Data on renewable power capacity represents the maximum net generating capacity of power plants and other installations that use renewable energy sources to produce electricity. For most countries and technologies, the data reflects the capacity installed and connected at the end of the calendar year.

Capacity is presented in megawatts (MW), while generation is presented in gigawatt-hours (GWh). Pumped storage, although included as part of hydropower data, is excluded from total renewable energy.

The International Renewable Energy Agency (IRENA) produces comprehensive statistics on a range of topics related to renewable energy. This publication presents renewable power generation capacity statistics for the past decade (2013-2022) in trilingual tables.

According to the report “Statistics of Renewable Energy Installed Capacity in 2023”, by the end of 2022, the total installed capacity of renewable energy power generation in the world reached 3372 GW, and last year, the new installed capacity of renewable energy also reached a record 295 GW, an increase of nearly 10%. In 2022, renewable energy accounted for 83% of the world’s newly installed power capacity.

Despite various uncertainties around the world, renewable energy continues to grow at record levels, and the fact that renewable energy power generation continues to grow confirms the trend of a further decline in installed capacity for fossil fuel power generation.

IRENA Director General Francesco La Camera said, “This sustained record growth shows that renewable energy still exhibits its tenacious vitality even in the face of a lingering energy crisis.”. He said that renewable energy has many large success stories, and with favorable policy support, its share in the

global energy structure has maintained a trend of increasing year by year. However, if we want to remain on the path of limiting global warming to 1.5 ? C, by 2030, the annual installed capacity of renewable energy must increase three times as much as it is now.

The significant growth of renewable energy is also mainly concentrated in a few countries and regions such as Asia, the United States, and Europe. According to IRENA’s statistical report, nearly half of the new installed capacity in 2022 was increased in Asia. By 2022, the total installed capacity of renewable energy in Asia was 1.63 TW (approximately 1600 GW). China has the largest new installed capacity, with 141 GW of new capacity added.

The new installed capacity of renewable energy in Europe and North America is 57.3 GW and 29.1 GW, respectively. Africa grew rapidly, adding 2.7GW, slightly higher than in 2021. Oceania continued to maintain double-digit growth, adding 5.2 GW. South America continued to maintain an upward momentum, expanding its installed capacity to 18.2GW. The Middle East region recorded the highest ever increase in renewable energy installed capacity, with an increase of 3.2GW or 12.8% in 2022.

Although hydropower accounts for the largest share of the world’s total renewable energy installed capacity, up to 1250GW, solar and wind energy continue to dominate new installed capacity. Wind power and photovoltaic technology accounted for 90% of all new renewable energy installations in 2022. Solar installed capacity increased by 22%, while wind installed capacity increased by 9%.

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