Wind turbines in the world

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The worldwide total cumulative installed electricity generation capacity from wind power has increased rapidly since the start of the third millennium, and as of the end of 2022, it amounts to almost 900 GW. Since 2010, more than half of all new wind power was added outside the traditional markets of Europe and North America, mainly driven by the continuing boom in China and India. China alone had over 40% of the world"s capacity by 2022.[3]

Wind power is used on a commercial basis in more than half of all the countries of the world.[4] Denmark produced 55% of its electricity from wind in 2022, a larger share than any other country. Latvia"s wind capacity grew by 75%, the largest percent increase in 2022.[3]

Data are sourced from Ember and refer to the year 2023 unless otherwise specified.[3] The table only includes countries with more than 0.1 TWh of generation.

But not every country can build profitable wind generation. Local geography decides wind capacity, and some countries have pushed toward wind generation more than others. So, which countries have built the most wind generation so far?

However, the wind farm lies in one of the country"s poorest regions. The lack of demand and transmission infrastructure toward more demanding areas led The New York Times to describe the turbines as looking "like scarecrows, idle and inert".

Many of the world"s largest onshore windfarms lie in the US. The world"s second-largest wind farm, the Alta Wind Energy Centre in California, has a capacity of of 1,548MW. The state of Texas alone produces a quarter of US" wind power with 24.9GW, providing more wind power than 25 other US states combined.

Recently, coastal states have committed to massive offshore wind developments, attracting massive investment. The federal government has also committed to offshore wind development, planning 30GW of generation across the Atlantic Coast.

Germany"s large wind power base can become problematic to it"s grid, as the country does not have enough power storage facilities to regulate the periodic power flows.

India"s rapid economic development and population growth have seen it expand its renewable capacity. The country aimed to install 175GW of unspecified renewable generation by 2022, but this now seems unachievable. At time of writing, the country remains one of the last to set a net zero target.

The country has the third and fourth largest onshore wind farms in the world, the Muppandal windfarm in

Tamil Nadu, Southern India (1,500MW) and the Jaisalmer Wind Park in Rajasthan, Northern India (1,064MW).

Approximately 20% of Spanish electricity comes from wind power, with a generation capacity of 23GW. The country has the fifth-most installed generation in the world, despite its relatively small economy.

Spain plays a large role in global wind manufacturing, hosting several operations of green giant Siemens Gamesa Renewable Energy. The company has installed more than 100GW of onshore and offshore wind turbines globally.

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