Wind turbine facts and information

Wind turbine facts and information

Official websites use .gov A .gov website belongs to an official government organization in the United States.

Secure .gov websites use HTTPS A lock (Lock Locked padlock) or https:// means you"ve safely connected to the .gov website. Share sensitive information only on official, secure websites.

Wind turbines are soaring to record sizes. The average rotor diameter of turbines installed in 2023 grew to 438 feet, up 178% since 1998-1999.

Brush up on your knowledge of wind! This article is part of the Energy.gov series highlighting the "Top Things You Didn"t Know About Energy" series.

10. Human civilizations have harnessed wind power for thousands of years. Early forms of windmills used wind to crush grain or pump water. Now, modern wind turbines use the wind to create electricity. Learn how a wind turbine works.

9. Today"s wind turbines are much more complicated machines than the traditional prairie windmill. A wind turbine has as many as 8,000 different components.

8. Wind turbines are big. Wind turbine blades average 210 feet long, and turbine towers average over 320 feet tall--taller than the Statue of Liberty. The average nameplate capacity of turbines is also increasing, meaning they have more powerful generators. The average capacity of utility-scale wind turbines installed in 2023 was 3.4 megawatts (MW), up 5% from the previous year.

7. Higher wind speeds mean more electricity, and wind turbines are getting taller to reach higher heights above ground level where it"s even windier. See the Energy Department"swind resource mapsto find average wind speeds in your state or hometown and learn more about opportunities for taller wind turbines in areport from the Energy Department"s National Renewable Energy Laboratory.

6. Many of the components of wind turbines installed in the United States are manufactured here, with more than 450 wind-related manufacturing facilities across the country. The U.S. wind industry currently employs more than 125,000 full-time workers. These jobs include those in construction (>45,000) and manufacturing (>23,000). Read more at U.S. Energy and Employment Jobs.

5. Offshore wind represents a major opportunity to provide power to highly populated coastal cities. The first operational commercial-scale wind power plant in the United States, the 132-megawatt (MW) South Fork Wind Farm located off the coast of Rhode Island and delivering power to New York, was installed in March

2024. There are also small projects installed off the coasts of Rhode Island and Virginia, and dozens of larger projects in the works. See what the Energy Department is doing to develop offshore wind in the United States.

4. There is utility-scale wind power (from turbines over 100 kilowatts) installed in 43 states. Twenty-three states had more than 1 gigawatt (GW) or 1,000 MW of wind capacity at the end of 2023, with seven above 5 GW. There is distributed wind installed in all 50 states plus the District of Columbia, Puerto Rico, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands.

2. Wind energy is affordable. Wind prices for power contracts signed in the last few years have ranged from 1.4-5.5 cents per kilowatt-hour, with an average of 2.5 cents per kilowatt-hour.