How do we use wind power to generate electricity?

planete energies

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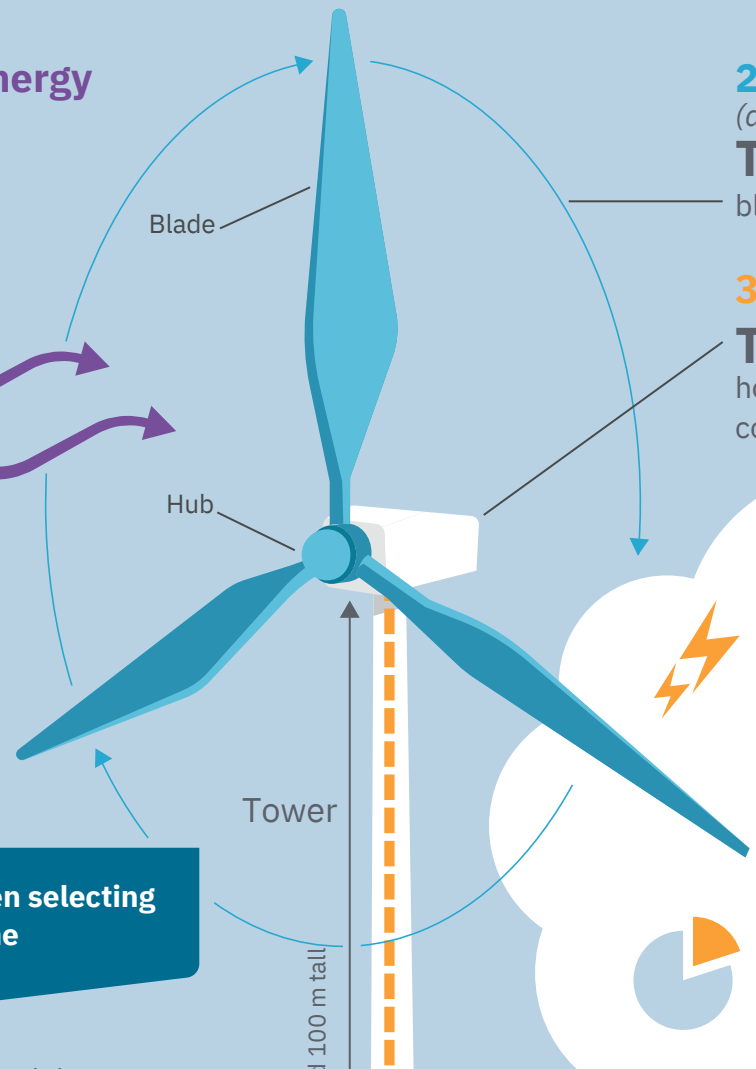
1. Kinetic energy
(a moving fluid)
The wind

2. Mechanical energy
(a moving solid)
The rotor:
blades + hub of the wind turbine

3. Electrical energy
The nacelle
houses the energy conversion mechanism



Electricity generation is directly related to wind speed, and is therefore intermittent and irregular.

Wind direction

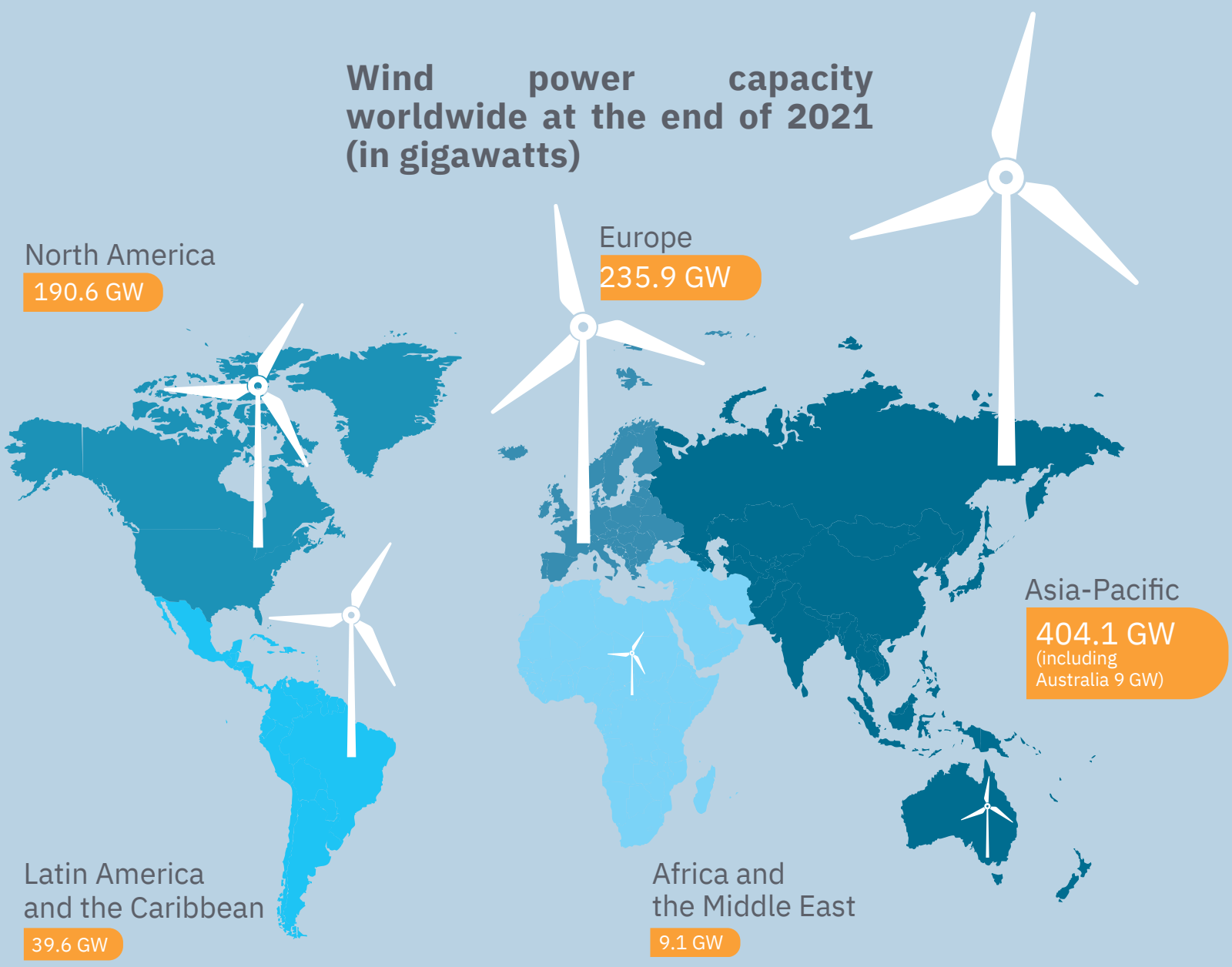
The theoretical maximum capacity of a wind turbine (i.e., if it ran non-stop at full output) generally ranges from **1 MW** to **3 MW,** and up to about **6 MW** for an offshore wind turbine.

Actual output is only around **20%** of the theoretical maximum capacity for onshore wind.

7 key considerations when selecting a site for a wind turbine

1. Strong winds: wind speeds between 11 and 90 km/h
2. Constant wind throughout the year
3. Reliable wind speed and direction
4. Minimal impact on local wildlife (birds, bats, etc.)
5. A minimum distance from housing, which varies from country to country (500 m in France)
6. A location accessible to vehicles
7. Solid, stable ground

Wind power capacity worldwide at the end of 2021 (in gigawatts)



Aggregate wind power capacity worldwide (in gigawatts)