

# What is the purpose of inverters in wind turbines

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Wind turbines play an essential role in wind power generation. From their beginnings as windmills designed to extract water to their present-day use, these devices are at the forefront of sustainable energy production.

A wind turbine, also known as a wind generator, is a device that uses the power of the wind to generate electricity. When several wind turbines are grouped together in the same place, a wind farm is formed.

The diversity of available wind turbines makes it possible to make the choice depending on different needs. Aspects such as wind speed at the location, the purpose of the installation, and economic considerations are decisive in selecting the most suitable type of wind turbine.

The blades are attached to the hub (the central part to which the rotor blades are connected), which is linked to a gearbox and the generator. The main function of the gearbox is to increase the rotational speed of the rotor in order to generate electricity.

The tower raises the rotor to make the most of stronger winds at higher altitudes. Overall, this design enables the effective conversion of the wind's kinetic energy into electricity, thus contributing to sustainable wind energy production.

Instead of using classic blades that rotate around a horizontal axis, these devices opt for a vertical axis configuration, eliminating the blades altogether. Harvesting wind energy is achieved through alternative aerodynamic principles, such as the use of vertical cylinders or helical structures. These designs seek to improve efficiency and reduce the visual and acoustic footprint associated with traditional blades.

These technologies, which involve small wind turbines, allow users to choose the source of their energy and generate electricity in a decentralized manner to meet part or all of their energy needs.

When installed in residential or commercial environments, these solutions facilitate the local generation of renewable energy, reducing dependence on conventional sources and contributing to the transition to more sustainable and efficient systems.

In addition, advances in efficiency and cost reduction have made small and micro wind turbines more accessible options for those looking to adopt self-consumption practices and reduce their environmental footprint.

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