

Dc generator for wind turbine

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Most of us have seen wind turbines, but did you know the elements that help in the seamless operation of those turbines?

One of those elements is wind turbine generators. Before we talk about generators in details, let us know their function in operating wind turbines.

Wind turbines generate electricity by using wind power to drive an electrical generator.

When the wind passes over the blades, it exerts a turning force. The rotating blades make a shaft turn inside the nacelle, which goes into a gearbox.

Next, the gearbox speeds up the rotation to an appropriate level for the generator, which uses magnetic fields to convert the rotational energy into electricity.

There are basically two types of wind turbines -- fixed-speed turbine and variable wind turbine.

Out of these two types of wind turbines, the most commonly used is the fixed-speed turbine, where the induction generator is directly connected to the grid. However, this system has its flaws because it often fails to control the grid voltage.

To avoid the flaws of a fixed-speed wind turbine, variable-speed wind turbines are used. These turbines provide stability to the dynamic behaviour of the turbine and reduce the noise at low wind speeds.

To operate a variable-speed wind turbine, however, an electronic converter is needed, and this is where the role of a wind turbine generator comes into play.

To equip a wind turbine with any three-phase generator, such as a synchronous generator and asynchronous generator, ensure more consistent operations.

In this article, we will mainly talk about different types of wind turbine generators and their functions.

Operating a generator at variable speed reduces the physical stress on the turbine blades and drive, and which improves aerodynamic system efficiency and torque transient behaviours.

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