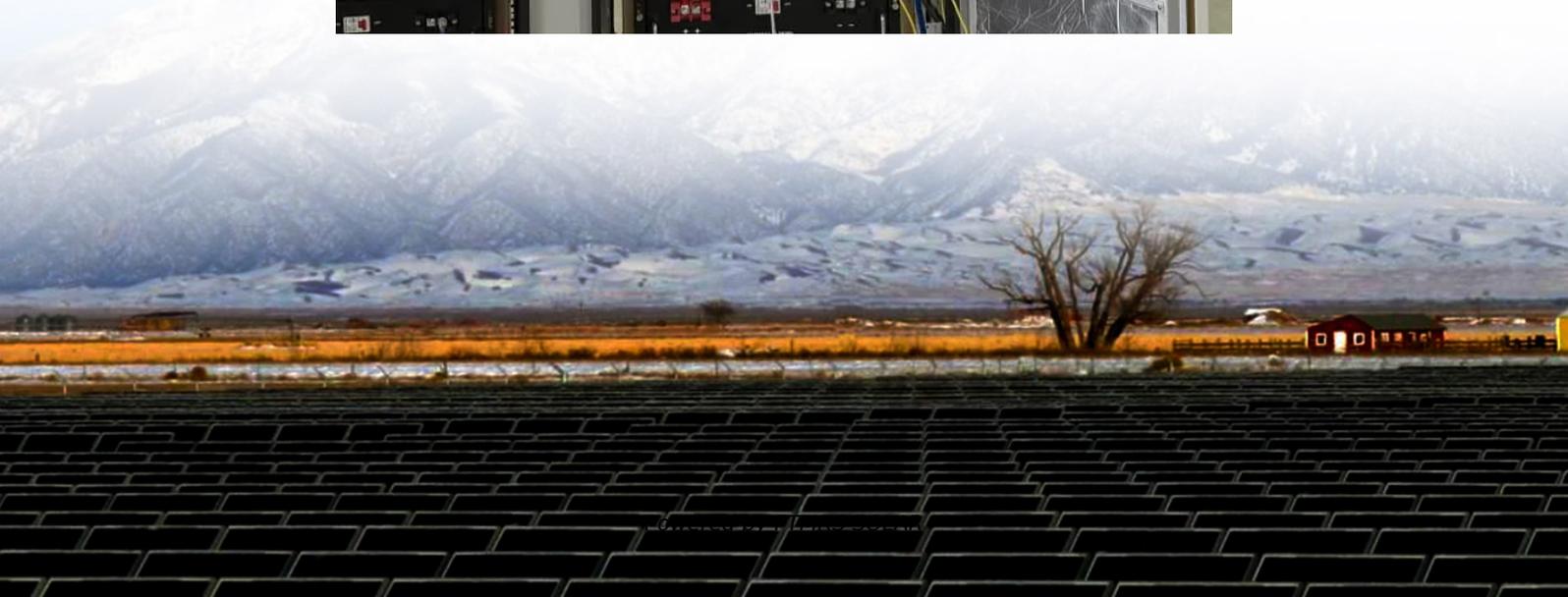


Constant speed wind turbine system





Overview

How does a constant speed wind turbine work?

A constant speed wind turbine operates at the maximum power point according to the wind conditions to control the active and reactive power of the machine. This is achieved through power electronics for machine control. The turbine may include a synchronous or induction generator.

How is a wind turbine controlled?

The conventional control of a wind turbine involves regulating the power yield and rotor speed. In above-rated wind conditions, the generator power should be as close as possible to the rated value. In below-rated wind speeds, the rotor speed should 'track' the wind speed to gain maximum energy yield.

How does a variable speed wind turbine operate?

In a variable speed wind turbine, the rotor speed increases with wind speed up to a certain limit. This allows for quieter operation at low wind speeds compared to a constant speed wind turbine.

How do wind turbines control rotary speed and grid frequency?

In constant speed wind turbines, the control system decouples the rotary speed and grid frequency. This means that the wind turbines cannot provide corresponding active power when grid frequency varies, reducing the inertia of the whole power grid.



Constant speed wind turbine system

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Constant Speed Wind Turbine

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