How to reduce the temperature and voltage of wind turbine generators

How can wind turbine generators be improved?
More in-depth analysisshould be carried out in the design,control and operation of the wind turbines primarily using numerical,analytical and experimental methods if wind turbine generators are to be further improved.

Why do wind turbines have a low cooling capacity?
Development of recent high-efficiency generators and motors leading their designs with less cooling capacity. Bearings are one of the most stressed components in the generator. Recent studies have indicated that bearing failureis the prime cause of generator failure,in wind turbine application.

Why should a wind turbine control system be used?
The control system may also stop the wind turbine,reduce structural load,and maximize the power generation by using the active wind turbine management,which costs the life spans for the mechanical components. The control system should ensure the maximum efficiency of wind power is extracted by the turbine at low wind speeds.

How can wind farms improve voltage stability?
[22]suggested potential methods that can improve the voltage stability of wind farms: one is to install a static var compensator(SVC) to provide dynamic reactive power support,and the other is to select a doubly-fed induction generator (DFIG) that can control reactive power flexibly without installing reactive power compensation devices.

What are the different voltage control methods for wind turbines and HVDC transmission systems?
Therefore,this study discusses various voltage control methods for wind turbines and HVDC transmission systems. First,various voltage control methods of a wind farm were introduced,and they include QV control and voltage droop control.

How to optimize a wind turbine generator?
One of key components in the wind turbine is its drive train, which links aerodynamic rotor and electrical output terminals. Optimization of wind turbine generators can not be realized without considering mechanical, structural, hydraulic and magnetic performance of the drive train.

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Variable wind speed turbines are designed to reduce mechanical stresses, maximise wind energy capture and provide smoother output power which is more suited to the grid. This technology became popular in the ...

Generators used in Wind Power Plants. The generators are used in the wind power plant to convert the kinetic energy of wind into electrical energy. There is different generator used according to the power requirement. The below list ...

Most wind turbines use electromagnetic generators, which generate electricity through the interaction of magnetic fields and conductive coils. ... This makes it a crucial part of global ...

How do Wind Turbine Generators Work? Wind turbines commonly operate on a simple principle: wind turbines utilize the wind to produce the electricity. ... flying a kite, sailing, and even producing electricity. The ...

Power coefficient--The ratio of the power extracted by a wind turbine to the power available in the wind stream. Power curve--A chart showing a wind turbine"s power output across a range of wind speeds. Prevailing wind--The ...

1.1 Wind turbines generators reliability. The horizontal axis wind turbines are the main type, including the doubly-fed units with a speed-up gearbox, and the direct or semidirect ...

A reactive power coordination control strategy was proposed in to optimize voltage quality and minimize power loss using a genetic algorithm; moreover, the control method was confirmed better than the unit power factor ...

A 6MW variable speed, 3 bladed, pitch regulated wind turbine is used in this study for offshore operation. It is assumed that the turbine rotor operates at its maximum power coefficient below ...

The share of wind-based electricity generation is gradually increasing in the world energy market. Wind energy can reduce dependency on fossil fuels, as the result being attributed to a ...

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