

## European Solar and Energy Storage Solutions

# Wind turbine generator winding overheating



## Overview

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What causes wind turbine downtime?

Numerous statistical studies have pointed out that generator failures are a main cause of wind turbine system downtime. The generator, as one of the core components, converts rotating mechanical energy into electrical energy.

What are the common faults of a wind turbine generator?

Common faults of wind turbine generator. Generator electrical faults are mainly stator eccentricity, rotor eccentricity, broken rotor bars, and looseness. The main manifestations of generator stator faults are overheating of stator windings, insulation damage, and grounding.

Why is my Generator overheating?

For instance, an alarm for the overheating of generator windings could be possibly caused by a failure of power electronic components, or short circuit, or malfunctioning of cooling system, etc.

What is a wind turbine generator failure analysis & fault diagnosis?

In this article, a comprehensive and up-to-date review of wind turbine generators failure analysis and fault diagnosis are presented. First, the electrical and mechanical failures of various WTG components, including stator, rotor, air gap, and bearings, are analyzed. Then, the fault characteristics and root causes of WTG are studied.

What causes a generator winding temperature anomaly?

This suggests that the underlying cause of the generator winding temperature anomaly could be the failure of the cooling system, which leads to the cooling failure of the generator slip ring chamber and the increase in winding temperature. This outcome corresponds with the phenomenon described by the field O&M logs.

What causes a wind turbine bearing to fail?

Insufficient lubrication in the bearing of the wind turbine generator will lead to poor heat dissipation of the bearing, which will cause bonding on the surface of various components inside the bearing. When the load is too large, it will accelerate the process of gluing and make the bearing fail. The bearing fault is caused by uneven force.

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### Permanent Magnet DC Generator in Wind Turbine ...

Both Shunt Wound and Series Wound self-excited DC generators have the disadvantage in that changes in load current causes severe changes in generator output voltage due to armature reaction and as a result, ...

### Online condition monitoring and fault diagnosis in wind turbines: ...

1 ??· In typical generators, the windings or set of coils are called armature winding. The armature winding for AC generators is at the stator. All types of generators are capable to ...

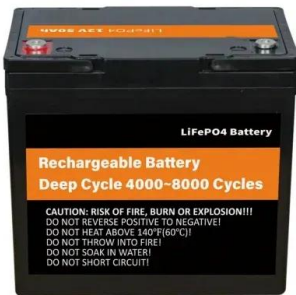


### Wind turbine generator failure analysis and fault diagnosis: A ...

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In this article, a comprehensive and up-to-date review of wind turbine generators failure analysis and fault diagnosis are presented. First, the electrical and mechanical failures ...

### Ripple Field AC Losses in 10-MW Wind Turbine Generators With ...

In generator design phases, the ac loss caused by these ripple fields needs to be evaluated to avoid local overheating and an excessive cooling budget. To determine the applicability of ...



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**??XGBoost?LSTM??????????????**

Abstract: Generator stator winding temperature is a significant representation of the health status of wind turbines. Accurate prediction of winding overheating can help us timely formulate ...



**(PDF) Modelling & Simulation of a Wind Turbine with ...**

PDF , On Nov 9, 2020, Essam ABDULHAKEEM Arifi published Modelling & Simulation of a Wind Turbine with Doubly-Fed Induction Generator (DFIG) , Find, read and cite all the research you need on



## "Wind Turbine Generator Overheating Solution" by Gopal Singh

Selecting a correct insulation system for the generator winding for the wind turbine application has been recommended to IEC/IEEE. The research presents a unique finding in the difference in ...



## Early warning of stator winding overheating fault of water-cooled

Download Citation , On Apr 1, 2023, Yulei Yang and others published Early warning of stator winding overheating fault of water-cooled turbogenerator based on SAE-LSTM and sliding ...

## Fundamentals of Wind Turbines , Wind Systems ...

Wind turbines are the fastest-growing renewable energy source, and wind energy is now cost-competitive with nonrenewable resources. in a direct-drive turbine, the generator is much bigger because it must rotate at ...



## Fault-tolerant Control of a Wind Turbine with Generator

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Faults of wind turbine generator electromechanical parts are common and very expensive. This paper intro- winding overheating, or vibrations (especially due to fallen stator slot wedge). ...

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