Wind turbine generator air gap

Overview

The airgap, which is formed between the stator and a rotor in a wind turbine electric generator is an important design feature that contributes to determines the overall ef ficiency of the wind turbine. the. Faculty Internal Supervisor: Prof. Ralf Schelenz I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research without use of any other than the cited sources and aids. Sentences or parts of sentences quoted. The goal of this master thesis is to compare different model depths of a direct drive wind turbine regarding the generator air gap sensitivity under the gravity's impact, the magnetic pull and the wind loads in the FEM and MBS. First, the electrical and mechanical failures of various WTG components, including stator, rotor, air g p, and bearings, are analyzed. Ratio KR L R=L/D is chosen in the range of wind turbine system.

Article Content

Innovative approaches for reducing wind turbine noise: A review from ...

Although wind energy is considered as one of the cleanest forms of energy, the noise generated from wind farms, if not mitigated, adversely affects the nearby environment resulting in

The Energy Mix

Canadian independent, non-profit news agency reporting on the energy transition and how communities are making it happen.

Heat transfer in air-gap and thermal-fluid coupling field of a large ...

With the capacities of large-scale turbine generators increase, higher electrical and thermal loads may cause higher risk of thermal faults. Especially, for those air cooling machines with

Comparison of Different Model Depths of a Direct Drive Wind Turbine ...

The end of the chapter focuses on the causes of air gap displacement in a direct drive generator and describes the main factors, which have an impact on the generator air gap deflection.

Comparison of Different Model Depths of a Direct Drive Wind Turbine ...

The goal of this master thesis is to compare different model depths of a direct drive wind turbine regarding the generator air gap sensitivity under the gravity''s impact, the magnetic pull and the wind

Investigating the impact of magnetic air gap variations on short ...

Large-scale direct-drive superconducting wind generators feature a notably widened magnetic air gap to accommodate the cryostat, leading to decreased end winding inductance.

Wind turbine generator failure analysis and fault

The generator air gap eccentric fault means that the unevenness of the air gap between the stator and rotor of the motor exceeds the standard

A Novel Axial Field Flux-Switching Permanent Magnet Wind Power Generator

With their high power density, permanent magnet synchronous generators have received widespread attention and application in vertical axis wind turbines. ...

Airgap diameter of PM wind generators as a function of

Hence, they are appropriate and widely used for small-scale wind turbines where the cost of magnets is not such a prohibiting factor as with large turbine generators .

Comparison of a Direct Drive Wind Turbine with and

One of them includes a coupling between the hub and generator-rotor to decouple the input wind loads from the generator and thus to decrease the

Comparison of Different Model Depths of a Direct Drive Wind Turbine ...

Comparison of Different Model Depths of a Direct Drive Wind Turbine Regarding the Generator Air Gap Sensitivity This work was presented at the Chair for Wind Power Drives in Aachen on November

Wind turbine generator air gap

fault diagnosis are presented. First, the electrical and mechanical failures of various WTG components, including stator, rotor, air g p, and bearings, are analyzed. Then, the fault characteristics and What is

Direct-Drive Wind Turbine Generator Vibration Induced by High-Order

In this work, the mechanism in which nonuniformity of a DD PM WTG air-gap leads to vibration via air-gap radial Maxwell stress harmonics is investigated.

US20240011757A1

A method for performing a plurality of measurements in the air gap between a stator and a rotor of a generator for a wind turbine is provided The method steps include: mounting distance measuring

Airgap measurement in a generator of a wind turbine

A method for performing a plurality of measurements in the air gap (15) between a stator (20) and a rotor (30) of a generator (11) for a wind turbine (1), the rotor (30) being rotatable with respect to the stator

SOLVED: I am research on offshore wind turbine and I was

The air gap in a wind turbine generator refers to the distance between the rotor and the stator. The rotor is the rotating part of the generator, usually connected to the turbine blades, while the stator is the

Method and apparatus for wind turbine air gap control

This invention relates generally to electric generators, and more particularly, to methods and apparatus for controlling an air gap between a rotor and a stator in a wind-powered turbine

Comparison of a Direct Drive Wind Turbine with and without

In this paper a more detailed simulation model is depicted, which calculates realistic deformation of the wind turbine and in particular the displacement between the generator-rotor and

EP4012327A1

the airgapwhich is formed between the stator and a rotor in a wind turbine electric generator is an important design feature that contributes to determines the overall efficiency of the...

A magnetic analysis of ferrofluid-gaps for direct-drive wind turbine ...

Multi-megawatt permanent magnet (PM) direct-drive (DD) wind turbine generators (WTGs) require a substantial amount of expensive rare-earth PM material in their construction due to their large air-gap

Air-gap secure system for wind turbine

The present invention relates to an air gap safety system for a wind turbine and in particular discloses a wind turbine comprising a rotatable structure coupled to a hub of the wind turbine and coupled to a

Airgap diameter of PM wind generators as a function of

In this study, a state-flow based wind MPPT technique is proposed offering two degree of freedom, namely dedicated sample time and super-stepping as WECS

Air gap measuring device for wind turbines

An air gap measuring device for a wind power generator is disclosed that can measure the dimensions (air gap) of a large structure that constitutes a wind power generator, with a diameter of several

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