Composition of wind turbine generator stator

Why do turbine generator stator end windings vibrate?
Turbine generator stator end windings vibrate due to electromagnetic forcesgenerated during normal operation or under fault conditions. In normal operation,electromagnetic vibration of a stator core and the electromagnetic forces created by current flowing in stator bars excite the end windings at twice the power frequency (100 or 120 Hz).

Do stator end windings have vibration characteristics?
P.G.S. Kumar studied the vibration characteristics of stator end windings . Jiang H-C et al. comprehensively analyzed the transient EF of the turbine generator stator winding and studied the EF and mechanical response of the stator winding before and after the rotor inter-turn short-circuit fault . ...

Should a stator winding be connected to a series Star design?
The stator winding should be connected to a hybrid delta star designwith series delta at moderate speed and series star at lower speed,using a switching converter if the wind speed is higher. Overall block diagram of proposed switching converter

What factors affect the vibration characteristics of a generator stator end?
Some more complex factors such as preload,damping,electromagnetic,temperature,frame,and rotorcan be added to the model,and the influence of multiple factors on the vibration characteristics of the generator stator end can be considered comprehensively.

What is a wind turbine electrical system?
typical wind turbine s electrical system comprises a series of subsystemsas shown in Figure 17. energy. However,since it has to face highly fluctuating torque load,supplied by the wind turbine rotor,it is significantly different from other generators used in electrical grids. will be outlined.

What are the parts of a wind turbine?
The wind turbine itself consists of the main tower,its three blades,and the nacelle. Inside the nacelle and the tower base are housed the various electrical and electronic parts necessary for the efficient and safe conversion of wind power to electrical energy. These include the power controls (pitch and yaw),the generator,and the

Condition Monitoring (CM) is critical for safety related complex components in thermal power plants. Stator winding temperature is one of the key monitoring indicators of turbine generator. ...

Abstract: In this study, the authors present methods for accurately modelling the bindings and the stator bars of turbine generator stator end windings for vibration analyses. The bindings are ...

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PDF | this paper presents a stator winding faults detection in induction generator based wind turbines by using artificial neural network (ANN). Stator... | Find, read and cite all ...

Keywords: Doubly-fed, Induction generator, Wind turbine. LIST OF IMPORTANT SYMBOLS v ... developed and is commonly used in wind turbines. The stator of a DFIG is directly connected ...

The new developments and studies have proven that the stator design concepts can be applied to multi-mega-watts rated direct drive wind turbine generators. The novel skewed stator design ...

This paper addresses the design and implementation of a novel control of a variable speed wind turbine with doubly fed induction generator for stand-alone applications. In opposition to grid-tied applications, in stand-alone systems the ...

The electromagnetic force, stress, and deformation on the end winding of the QFSN-600-2YHG turbo-generator are calculated by the finite element method (FEM) through an electromagnetic-structure...

The generator of the DFIG is the main component that converts mechanical power into electrical power. The doubly fed stator and rotator are achieved by controlling two back-to-back ...

A new method that uses a DFIG stator current signal for the fault diagnosis of wind turbine drivetrain gearbox in nonstationary conditions is proposed and laboratory test ...

Early detection of faults in wind energy systems can reduce downtime, operating, and maintenance costs while increasing productivity. This paper proposes a method based on the analysis of generator stator current ...

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