Generator circulating wind end vibration

Why do generator end windings vibrate?
The vibration of generator end windings has been a topic of concern since the beginning of power generation. Current flowing in the rotor and stator give rise to magnetic fields. The resulting forces lead to vibration within the stator core,but more seriously at the stator end windings and their support structures.

Is there a standard for generator end winding vibration?
Currently,there is not a set of established industry standardsor acceptance criterion for generator end winding vibration. There are many differing points of view within the power industry concerning the sources of vibration,methods of analysis,and solutions.

Why do generators need end windings?
The end-windings of large generators are exposed to some of the largest vibrations among all machines. The stability of these end windings has a major impact on the reliabilityof generators.

Can resonant vibration cause a generator end winding failure?
resonant vibration condition can lead to movement and forces that can compromise the stator bar insulation and possibly cause a complete failure of the generator. Currently, there is not a set of established industry standards or acceptance criterion for generator end winding vibration.

How to measure generator end winding vibration?
VIBRATION For the measuring of generator end winding vibration broadband measuring fiber optic accelerometer are usually used, which are fixed there with the radial measuring direction (s. Fig. 1). These sensors must satisfy the exactly Fig. 1. Optical accelerometer and fixing inside the generator

How does turbine rotor affect vibration behavior of generator end winding?
turbine rotor on vibration behavior of generator end winding in a bracket bearing generator is demonstrated (s. Fig. 5). It is obvious, that the state before balancing (thin line) has significantly changed after balancing (thick line) for the same load point. Especially 50 Hz standing waves show a great change of all modes.

Wind turbine vibration signals often have nonstationary stochastic features in addition to complex mode coupled vibrations and are often corrupted by the noise from the ...

When people think of wind power, most imagine rows of giant turbines stretching across wide expanses of land. David Yáñez envisions something else entirely. Yáñez is co ...

The hybrid generator is designed as an innovative device integrating a vibration-driven piezoelectric energy generator and damper (VD-PEGD) based on the damper structure, ...

This article presents a comprehensive analysis on the end winding vibration characteristics due to different stator inter-turn short circuit (SISC) positions in synchronous generators. Different ...

MEASURING SENSORS OF GENERATOR END WINDING VIBRATION For the measuring of generator end winding vibration broadband measuring fiber optic accelerometer are usually ...

This paper presents a vortex-induced vibration (VIV)-based piezoelectric energy harvester that performs well for all wind directions, a so-called omnidirectional wind energy ...

Wind turbine is a machine that is powered by the wind; it is designed to convert the kinetic energy from the wind into mechanical energy and the produces electricity.

To verify the vibration signature induced by generator-side converter faults and the effectiveness of proposed diagnosis approach, a generator-side converter experimental ...

The power harvester unit from flow-induced vibration (FIV) was designed to harness energy from low flow velocity based on the magnetostrictive effect on the galfenol (Fe - Ga alloy) strip ...

AIR-gap eccentricity, which refers to the non-uniform air-gap space between the rotor and the stator, is a common mechanical fault in both generators and motors [1] ...

According to Hossain et al. [], said that wind turbine is greatly subjected to various fault on the mechanical system during operation which can be tired to the issues of ...

The operation of the blade pitch can be divided into three regions [9]: region 1 is at low wind speed, lower than the starting point; region 2 is when the wind speed passes the ...

Generator stator end winding resonance and high levels of end winding vibration are a significant industry issue that affects many generators. The authors will discuss in this paper, two units ...

Keywords:-- Wind turbine generator, vibration testing, signal process, vibration controlling I. INTRODUCTION ... Fig.1 The simple structure diagram of the generator a) The drive end b) ...

We"ve all got a pretty good mental image of the traditional wind-powered generator: essentially a big propeller on a stick. Some might also be familiar with vertical wind ...

Investigations on static air-gap eccentricity (SAGE) faults about magnetic field variations, current/ voltage changes, and stator/ rotor vibrations have been widely carried out, ...

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