

# The influence of generator wind temperature on vibration

How does vibration affect wind turbines?

The effects of vibration cannot be overemphasized when it comes to generating energy via wind turbine. Vibration is one of the major challenges faced by the wind turbine, due to the complexity of the structure and the area of installation. This research work focuses...

Why is vibration a limiting factor in wind turbines?

Vibration in wind turbines remains a significant limiting factor in their design, installation, monitoring, and maintenance, especially for larger turbines. Typically, turbine vibrations are characterised in terms of in-plane (flapwise) and out-of-plane (edgewise) modal deformations, as illustrated in Fig. 6 (a-b).

Does wind turbine vibration control extend the lifespan of wind energy generators?

Concluding remarks Extensive research in wind turbine vibration has facilitated advancements in wind energy generator technology and extended their lifespan. This paper reviews recent progress in dynamic and vibration control strategies, providing detailed insights into each turbine component, with a particular emphasis on developments since 2015.

Do wind turbine drivetrains have higher vibration and noise?

As critical components to transfer wind power into electric energy, drivetrains of wind turbines inevitably face challenges of higher vibration and noise. However, under the new situation there is a gap in comprehensive review and summary on the vibration and noise of wind turbine drivetrains.

Why do wind turbines need a vibration control system?

When these things are properly put in place, it will help to reduce unwanted vibration occurrence, eliminate unexpected failure of the wind turbine in operations, and hence sustainable energy generation from wind turbine. Vibration will occur when a structure is dislodged from its location of stable equilibrium.

Do wind turbine blades have vortex induced vibrations?

The present work addresses the problem of vortex induced vibrations (VIVs) of wind turbine blades in standstill. In order to progress in the understanding of this phenomenon, both a comprehensive literature review and a numerical study were carried out.

The research presented in this paper draws upon synchronised databases of generator bearing vibration time series and failure events from a turbine original equipment manufacturer (OEM). This allows multiple vibration ...

In this paper, a 12 MW high temperature superconductor (HTS) superconducting direct-drive wind generator with FSCWs is designed. The analytical model of the electromagnetic forces and the ...

# The influence of generator wind temperature on vibration

(1) Background: As environmental issues gain more attention, switching from conventional energy has become a recurring theme. This has led to the widespread development of photovoltaic (PV) power generation ...

**SUMMARY** The endwinding region of large turbine generator stator windings is one of the most complex parts of a generator to design and fabricate. During normal operation, the ...

The natural vibration characteristics of bridges, including frequency, vibration mode, and damping, are affected by structural stiffness and the extent of damage, which can ...

Jun W proposes a new simple and effective vibration order tracking method with the aid of a generator stator current signal for generator bearing fault diagnosis of variable-speed direct-drive wind turbines. First, the ...

As critical components to transfer wind power into electric energy, drivetrains of wind turbines inevitably face challenges of higher vibration and noise. However, under the new ...

Request PDF | Study on the influence of oil temperature on power transformer vibration | Under harsh condition, failures of power transformer like aging, short circuit impacts ...

Bearings are critical constituents of wind turbine generators, serving to locate and support the rotational components in the generator [1], [2], [3]. During extended operation, the ...

