Analysis and processing of high generator wind temperature

Are high-temperature superconductor wires a good choice for wind turbine generators?
Significant progress in high-temperature superconductor (HTS) wires enables MW-rated generator designs with lower volume and mass. There are many studieson superconducting high-power synchronous wind turbine generators.

What is htssg for offshore wind energy?
HTSSG for offshore wind energy High temperature superconductors(HTS) evolve continuously with better electrical,mechanical and magnetic characteristics with a minor cost for application in industrial sectors as wind energy systems. The result of the high current density in HTS tapes is the high power density obtained in HTS generators.

How was data collected from a wind turbine?
It is noted that the data set was not collected under regular operating phase (or during electricity production stage) of the wind turbine. The data acquisition process was performed in a full-control schemeto collect a 'benchmark' SCADA data set including two fault events,which were human-made.

Are superconducting high-power synchronous wind turbine generators feasible?
There are many studies on superconducting high-power synchronous wind turbine generators. In , direct-driven wind turbine generators with HTS winding were studied in general, and their advantages were demonstrated in comparison with conventional generators. The feasibility of a 5 MW HTS wind turbine generator (WTG) was discussed in .

How does wind speed affect a generator?
In response to the wind speed variations,the generator speed dropped downfrom 800 rpm to almost stationary state (standstill),then suddenly increased up to more than 600 rpm and afterward rapidly decreased again to 0 rpm,and finally boosted up to the speed nearly 800 rpm (see Fig. 5 b).

How is condition monitoring used in a wind turbine drivetrain?
The method is applied for condition monitoring of a wind turbine drivetrain with a nominal power of 2 MW using temperature-related SCADA data. A multiple linear regression model is formed using gearbox and generator temperature data as the independent variables and generator speed data as the dependent variable.

owned subsidiary of AMSC, a leader in wind turbine design, to develop 3.1, 6, and 10 MW high temperature superconductor, direct drive (HTSDD) generator wind turbine designs as focused ...

The turbine population for this analysis contains over 1800 doubly fed induction generators, partially rated converter wind turbines, and 400 permanent magnet generator fully ...

Analysis and processing of high generator wind temperature

The objective is to increase the turbines availability, by improving the wind turbine reliability especially for offshore plants. The wind turbines reliability is a pivotal factor in the successfully ...

high temperature superconducting direct drive (HTSDD) generator technology by integrating the technologies into a conceptual wind turbine design, and comparing the design to geared drive ...

Wind power is one of the most promising renewable energy technologies for the future. 1 The condition monitoring of wind turbines (WTs) has received a significant amount of ...

Bearings are crucial components that decide whether or not a wind turbine can work smoothly and that have a significant impact on the transmission efficiency and stability of the entire wind turbine"s life. However, wind power equipment ...

1 Introduction. As wind power is dominating the development of renewable energy and deriving the national "double carbon" target of the 14th Five-Year Plan, there is an urgent need to ...

In the context of large-scale wind power access to the power system, it is urgent to explore new probabilistic supply-demand analysis methods. This paper proposes a wind power stochastic and extreme scenario ...

To demonstrate this, a simulated correlation relationship of generator bearing temperature versus generator power and ambient temperature is shown in Figure 5. 43 In Figure 5, it is seen that ...

Bearings are crucial components that decide whether or not a wind turbine can work smoothly and that have a significant impact on the transmission efficiency and stability of the entire wind ...