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Frequency range of wind power for civil communication base stations

Overview

The system inertia is gradually decreasing and frequency security issues are becoming more prominent with the increasing penetration of wind power. To ensure the safety and stability of power system.

Are there competing interests in wind power based power system frequency regulation?

Competing interests The authors declare that they have no competing interests. Wen, Z., Yao, L., Cheng, F. et al. A comprehensive review of wind power based power system frequency regulation. Front.

Why is frequency regulation required for wind power plants (WPPs)?

The system inertia is gradually decreasing and frequency security issues are becoming more prominent with the increasing penetration of wind power. To ensure the safety and stability of power system, many countries have updated their grid codes to reinforce the frequency regulation requirements (FRRs) for wind power plants (WPPs).

Does wind energy affect power system frequency regulation?

It has been indicated by recent investigations that large penetration of wind energy has an impact on modern power system frequency regulation along with AGC systems and other control operation issues .

What is a temporary frequency response in a wind turbine?

Temporary frequency response or inertial response involves injection of active power for a short duration which is followed by a power decay and lastly a power retrieval stage such that wind turbine returns to initial pre-event condition. All these stages are depicted in Fig. 11.

Can wind energy be used to power mobile phone base stations?

Worldwide thousands of base stations provide relaying mobile phone signals. Every off-grid base station has a diesel generator up to 4 kW to provide electricity for the electronic equipment involved. The presentation will give

attention to the requirements on using windenergy as an energy source for powering mobile phone base stations.

What are FRRS in grid codes for wind power integration?

The FRRs in their grid codes for wind power integration are compared and analyzed from three aspects: frequency operating range, primary frequency response and inertia response. Based on the comparative analysis, combined with relevant policy documents, some future trends related to FRRs are concluded.

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