BUHLE POWER

Frequency regulation of wind power solar container energy storage system

Overview

In the power systems with high proportion of renewable power generation, wind turbines and energy storage devices can use their stored energy to provide inertia response and participate in primary freque.

Can wind power and energy storage participate in frequency regulation?

Currently, research on the control of wind power and energy storage to participate in frequency regulation and configuration of the energy storage capacity is at its nascent stage. Similar to wind generators, energy storage can be involved in system frequency regulation through additional differential-droop control.

How is the energy storage capacity configured based on frequency regulation demand?

In Section 3, the energy storage capacity is configured based on the system frequency regulation demand, and a wind-storage coordinated frequency regulation control strategy is proposed, which makes reasonable use of the frequency support potential of wind power and energy storage and ensures the dynamic stability of the system frequency.

Can energy storage control wind power & energy storage?

As of recently, there is not much research done on how to configure energy storage capacity and control wind power and energy storage to help with frequency regulation. Energy storage, like wind turbines, has the potential to regulate system frequency via extra differential droop control.

Should energy storage participate in primary frequency regulation?

It is necessary to configure energy storage to participate in primary frequency regulation when the wind power penetration rate is high. Secondly, the allocation of energy storage capacity needs to meet the requirements of grid-connected wind power system standards.

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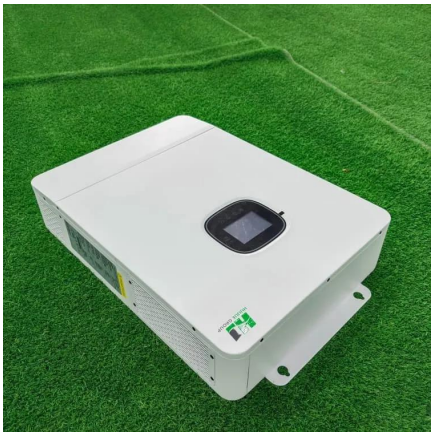

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Primary Frequency Regulation Strategy for Combined Wind-storage System

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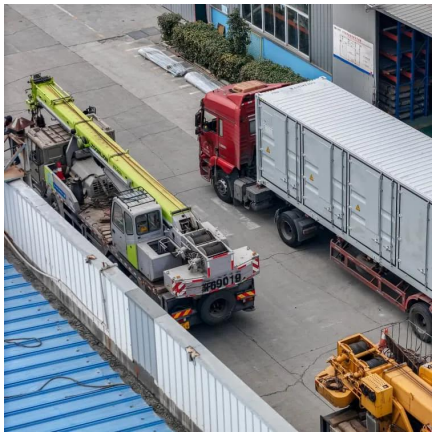

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