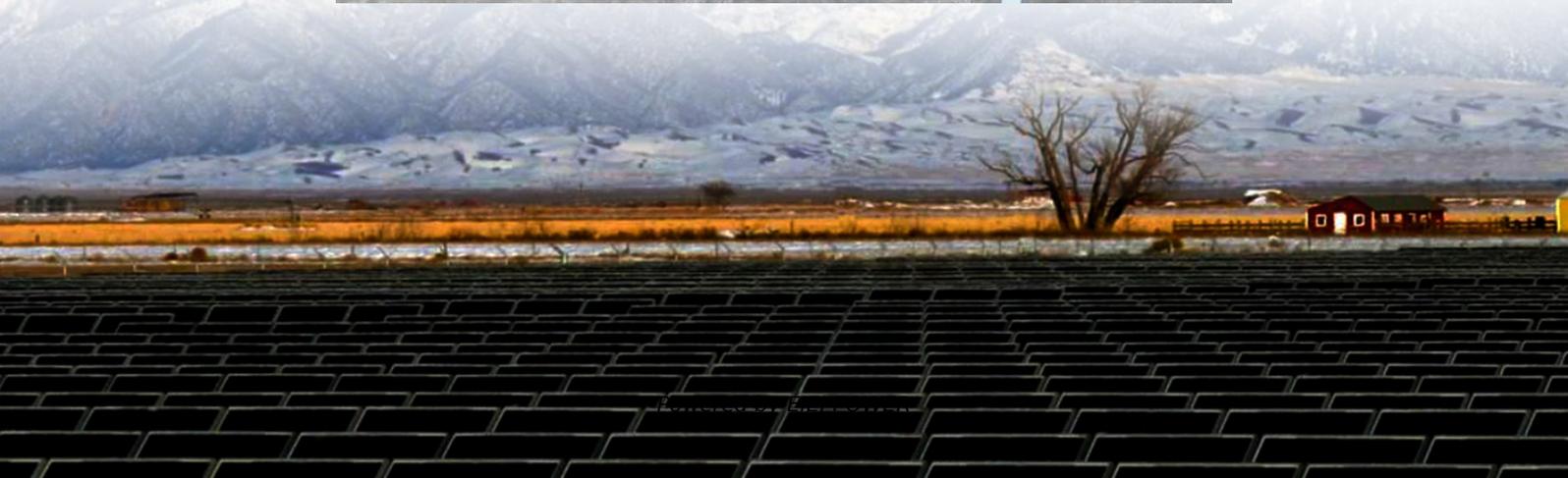


Compressing the utilization rate of energy storage power generation





Overview

Why is energy storage important in bulk power systems?

However, the centralised utilisation of renewable energy in bulk power systems is impeded mainly by its volatile nature and transmission congestion, leading to the spillage of renewable power. The energy storage unit is expected to be a promising measure to smooth the output of renewable plants and reduce the curtailment rate.

How can energy storage units reduce renewable power curtailment?

Installation of the energy storage unit (ESU) in complement with a large wind farm/solar station is an effective way to reduce renewable power curtailment [5 - 7], since the investment on transmission corridor is usually more expensive and time-consuming while decreasing the utilisation rate of the transmission system.

What is a distributionally robust sizing energy storage model?

(i) A distributionally robust model for optimal sizing energy storage is established; it aims to guarantee a DRCC on renewable energy curtailment rate with the minimal investment cost. A linear network model with reactive power and voltage is adopted. It better captures the operating status of the power system.

What is the integrated model for energy storage?

Ref. proposed an integrated model for the coordination planning of generation, transmission and energy storage and explained the necessity of adequate and timely investments of energy storage in expansion planning of new power system with large-scale renewable energy. Ref.



Compressing the utilization rate of energy storage power generation



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