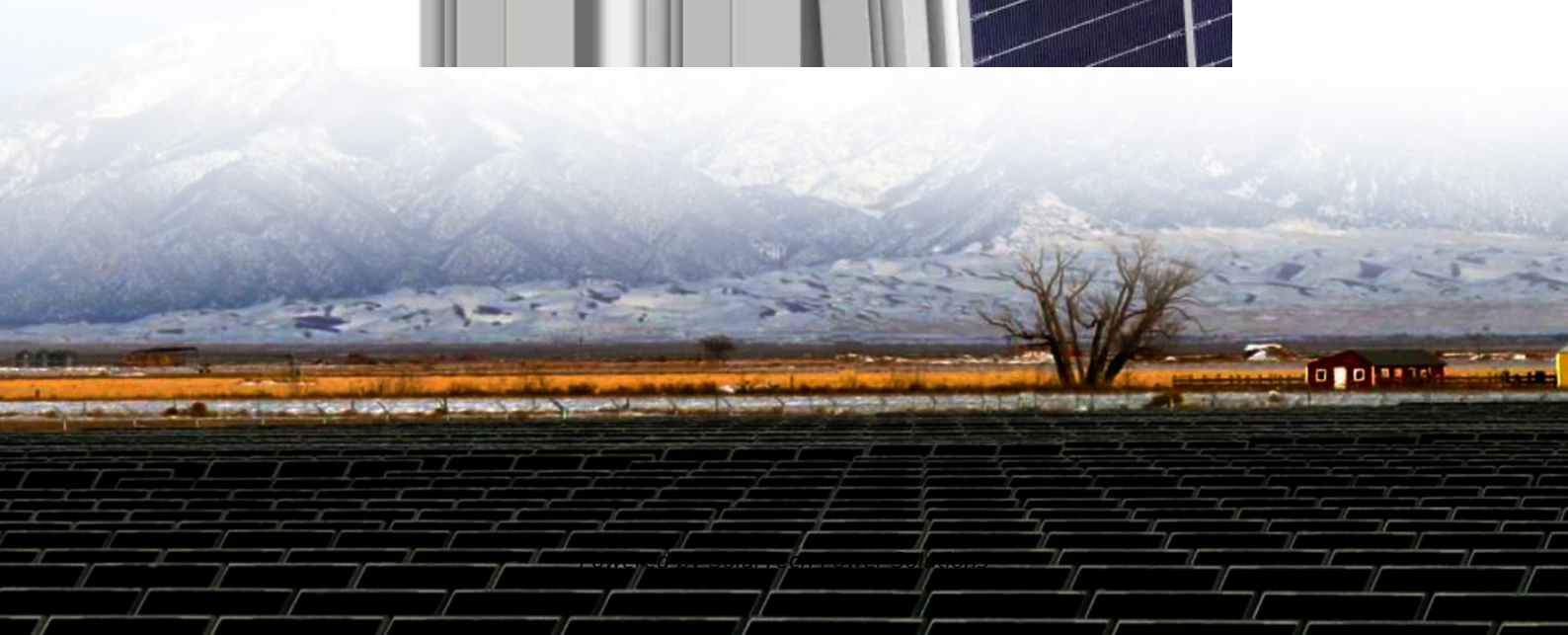


SolarTech Power Solutions

Application of energy storage system in frequency regulation



Overview

In this paper, we propose a solution to leverage energy storage systems deployed in the distribution networks for secondary frequency regulation service by considering the uncertainty in system disturbances, the energy storage availability, and the AC power.

In this paper, we propose a solution to leverage energy storage systems deployed in the distribution networks for secondary frequency regulation service by considering the uncertainty in system disturbances, the energy storage availability, and the AC power.

Abstract—Frequency control aims to maintain the nominal frequency of the power system through compensating the generation-load mismatch. In addition to fast response generators, energy storage systems can be exploited to provide frequency regulation service due to their fast ramping.

Since ESS is a controllable and highly responsive power resource, primary frequency response and inertia response are possible in case of system contingency, so it can be utilized for frequency regulation (FR) purposes. In frequency regulation, reduction of the Rate of Change of Frequency (RoCoF).

One of the critical aspects of grid stability is frequency regulation, which involves maintaining the grid frequency within a narrow range to ensure reliable operation of the power system. Energy storage has emerged as a crucial component in frequency regulation, providing a flexible and responsive.

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