

# How to adjust the energy storage movement parameters of new equipment outdoors

Why should energy storage devices be connected to the power grid?

The connection of energy storage devices to the power grid can not only effectively utilize the power equipment, reduce the power supply cost, but also promote the application of new energy, improve the stability of the system operation, reduce the peak-valley difference of the power grid, and play an important role in the power system.

What are the parameters of energy storage device?

The parameters of the energy storage device are set as follows:  $P_{INIT} = 0$ ,  $T_A = T_B = T_C = T_D = 0.5$  s, power control gain  $K_P = 1$ , speed control gain  $K_\omega = 1$ .

What is the optimal power for energy storage optimization?

Finally, the optimal powers  $P_i^*$  are  $P_1^* = E_1^*$ ,  $P_i^* = E_i^* - E_{i-1}^*$  for  $i = 2, \dots, N$ . This is the globally optimal solution of the original problem. Due to various advantages, dynamic programming based algorithms are used extensively for solving energy storage optimization problems.

What is the peak regulating effect of energy storage after parameter optimization?

According to the generator output curve and energy storage output curve, the peak regulating effect of energy storage after parameter optimization is better than that without parameter optimization.

How to control active power output of battery energy storage device?

Generally, the active power output command of the energy storage device adopts two control strategies, which are based on the proportional control of the active power output deviation of the generator ( $\Delta P$ ) and rotor angular velocity deviation ( $\Delta \omega$ ), and the battery energy storage device adopts an inertial link to simulate.

Why is energy storage important in power system?

Energy storage is an important flexible adjustment resource in the power system. Because of its bidirectional flow of energy, it is very suitable to be used in power system as a peak regulation method.



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