

Refining on the typical operating point character curve of battery energy storage for tracking the wind power output curve

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Abstract

With the expanding application of electrochemical energy storage technology in Power grid, it has sparked wild concern about researches on how to evaluate and test the real working condition of energy storage battery, but has not yet formed an authoritative analysis of the results.

The paper selects wind power's schedule outputs following as the typical working condition of energy storage battery , and utilizes the prediction error statistics of wind power, then attains the characteristics factors in concerned conditions and static configuration values under different confidence levels without considering the time series correlation analysis, thus we crystallize a method based on the correlation analysis in time sequence series also with the clustering to get the characteristics curve.

By the above method, we could analyze the cyclical changes, the work patterns in one cycle, interactive sequence and the frequency of the outputs of energy storage battery under working conditions, and also describe the orbit of SOC, extract the characteristic curve of energy storage battery output, which contents the dynamic control in real-time and evaluation to outputs and SOC.

As an example, by calculation and analysis, we proves the validity and feasibility of the method in a wind farm.