Research and Application on Multi-mode Energy Storage System

Smart Control

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Abstract — The smart control of energy storage system is always the hot and difficult topic of the smart grid. From the view of power distribution and utilization, we can make the original almost completely 'rigid' power system become the 'flexible' one through the establishment of the energy storage system. Also, the energy storage system can improve the power supply reliability and self-healing ability. In this paper, we study chemical energy storage system and its operating mode. In addition, we propose the architecture of multi-mode lithium-ion battery energy storage system based on on-grid and off-grid mode and the strategy of smart energy input and output switch control. Finally, we apply our achievement into the practical project. Our energy storage system provides the smart building sustained energy supply and plays an important role in cutting the power peak to fill the power valley.

Keywords — Control, Energy Storage System, Multi-mode, Lithium-ion Battery, Battery Management System