Urban rail ground-type hybrid energy storage

Therefore, the proposed MOGOA is applied to the capacity configuration problem of the urban rail hybrid energy storage systems (with ground batteries and on-board ultracapacitors) of Changsha Metro Line 1 in China, aiming to achieve the minimum voltage fluctuations of DC traction network and the lowest life-cycle cost of HESS simultaneously.

The planning and construction of urban rail hybrid energy storage system needs to consider a variety of factors, and the objectives such as investment economy, power supply reliability and the ability to suppress voltage fluctuation are widely studied. ... Study on Adaptive Energy Management and Optimal Capacity Configuration of Urban Rail ...

With the rapid development of urban rail transit, installing multiple sets of ground energy storage devices on a line can help reduce train operation energy consumption and solve the problem of regeneration failure. In this paper, through typical operating scenarios of two energy storage systems and a single train, the impact of the no-load voltage difference of the substation on ...

With the rapid development of urban rail transit in China, the problems of increasing operating energy consumption and large voltage fluctuations of the traction network have become increasingly prominent. In recent years, energy storage-type regenerative braking energy absorption and utilization devices with the purpose of energy-saving and voltage regulation ...

Due to the short distance between stations, frequent acceleration and braking for urban rail trains cause voltage fluctuation in the traction network and the regenerative brak-ing energy loss. In this study, a hybrid energy storage system (HESS) was proposed to recover braking energy and stabilize the traction network voltage, where the on-board

The fourth section applies the IMODE algorithm to configure the capacity of the urban rail photovoltaic-hybrid energy storage system, with specific optimization objectives outlined in Section 4.2. ... Study on Adaptive Energy Management and Optimal Capacity Configuration of Urban Rail Ground Hybrid Energy Storage System [J] Transactions of ...

The application of the hybrid energy storage system in the power grid energy storage, new energy vehicles, rail transit, and other fields is analyzed. The key technologies of the BSHESS, including their control and energy management, are analyzed in detail, and the control methods commonly used in the hybrid energy storage system are summarized.

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