

عنوان مقاله:

Experiment and economic efficiency analysis of hybridenergy storage based on superconducting magnetic energystorage for long-term energy management operations andcomparison with a conventional AC network

محل انتشار:

نخستین کنفرانس ملی و بین المللی معماری، فناوری های نوین و مدیریت ساخت (سال: 1402)

تعداد صفحات اصل مقاله: 8

نویسنده:

Mohammadreza Mohammadiya Asiabar - Master's degree, Islamic Azad University, Karaj branch

خلاصه مقاله:

A novel superconducting low-voltage direct-current (LVDC) power transmission and distributionnetwork consisting of multiple superconducting DC cables and a superconducting magnetic energy storage(SMES) based hybrid energy storage system (HESS) is presented. The superconducting DC cables arefavored for both high-efficiency power transmissions under normal conditions and self-triggering faultcurrent-limiting operations under fault conditions. The SMES-based HESS is integrated, with the merits of fast response speed and high-power density from the SMES, and high-energy density and high economicefficiency from conventional battery energy storage (BES), and thus, is much more effective than a soleSMES or BES device for smoothing the line voltage fluctuations caused by some sudden load variations orshort-circuit faults. The simulation results obtained from energy efficiency analyses and energy managementsimulations show that the proposed superconducting LVDC network has significant vantages in highefficiency,high-quality power transmission, and distribution compared to conventional AC networks

کلمات کلیدی:

.Energy efficiency, SMES, superconducting fault- current-limiting cable, Superconducting LVDCnetwork

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1877089>

