DC microgrid bus voltage fluctuation

Overview

This study proposes an integrated control method for the bus voltage of the DC microgrid to solve the abovementioned problems. As a result, DC bus voltage suffers from rapid changes, oscillations, large excursions during load disturbances, and fluctuations in renewable energy output. Energy storage devices can provide equivalent inertia. To enhance the inertia and response speed of the DC bus interface converter, this paper proposes a power allocation. Aiming at the problem of bus voltage control in DC microgrid, a dynamic compensation control strat-egy based on a residual generator is designed to complete the voltage compensation of DC-DC con-verter.

DC microgrid bus voltage fluctuation

Bus voltage stability control of DC microgrid considering voltage

The simulation results show that the designed controller can ensure voltage stability when the load changes and the system parameters change, and its performance is better than that of ...

Voltage Fluctuation Mitigation in DC Microgrids Through Finite-Time

Extensive simulation and experimental tests under various scenarios verify the effectiveness of the proposed control scheme in reducing bus voltage sags and swells without ...

Voltage stability control strategy for DC microgrid based on adaptive

The parameter adaptive strategy facilitates rapid recovery of the DC bus voltage in the event of power fluctuations or external disturbances, thereby significantly enhancing the dynamic ...

Hierarchical structure and bus voltage control of DC microgrid

In this paper, a review of the hierarchical control structure of the DC microgrids is provided, and the primary, secondary, and tertiary control levels are systematically analyzed and classified ...

Bus Voltage Stabilization Control of Photovoltaic DC Microgrid Based ...

Under this situation, in this paper, the fuzzy-PI dual-mode controller is designed to upgrade the traditional dual closed-loop control, taking voltage outer ring into consideration, which is ...

DC bus voltage fluctuation classification and restraint methods review

At first, this paper divided DC bus voltage fluctuations (DC BVF) into two types according to the time scale, frequency characteristic and produce mechanism of DC BVF, namely disturbance

Regulation of bus voltage on DC microgrid using hybrid technique

Many previous studies in the literature have focused on the integration of Bus Voltage on a DC Microgrid of Battery Charger/Discharger using various technologies and concepts. A selection of ...

Integrated bus voltage control method for

DC microgrids based on

This study investigates the DC microgrid system and proposes an integrated bus voltage control method, which includes an IAVIC, a oscillation suppressor, and a voltage compensator, to ...

Research on Bus Voltage Stability Control Technology of the DC

This paper proposes a control method for the voltage stability of DC microgrid buses based on a disturbance estimation feedforward compensation strategy, aiming to enhance the ...

Dynamic compensation control strategy of DC bus voltage based ...

Aiming at the problem of bus voltage control in DC microgrid, a dynamic compensation control strategy based on a residual generator is designed to complete the voltage compensation of DC-DC converter.

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