



SolarTech Power Solutions

Dual-row communication BESS power station



Overview

What is a Bess control system?

A control system for the multifunctional applications of a battery energy storage system (BESS) proposed. Determination of the battery parameters for the BESS model. Design of appropriate controllers for the BESS control system. Requirements for the implementation of the proposed control strategy in DIgSILENT Power Factory environment.

Does Bess provide reactive power support for a modified 12-bus test system?

Finally, the proposed control strategy for multifunctional applications of BESS, enabled it to provide reactive power support of 3.63Mvar for the modified 12-bus test system. Thereby, improving the voltage profile of the test system and consequently the quality of electric power supplied.

How much power does a Bess draw from the grid?

It could be noted that at the instant of the power system frequency event, the BESS goes into the charging mode, thus drawing about 15.29MW active power from the grid (see Fig. 25). This helped in keeping the system frequency at about 50.24Hz. However, without the BESS providing the required support, the system frequency rose to 50.38Hz.

Does Bess provide a reactive power support?

The BESS provided a reactive power support which helped in improving the power system voltage profile as seen in Fig. 27. In a situation where the reactive power support is not required, it could be deactivated, and the reactive power provided during the 10 s will be zero as evident in Fig. 28.

Can Bess be used for power smoothing and reverse power flow prevention?

Saturu et al. (2020), proposed a control system for BESS, enabling power smoothing and reverse power flow prevention while the authors in Soon-Jeong et al. (2016) presented an algorithm for the utilization of BESS for the

mitigation of both frequency and voltage deviations in an electric network with renewable sources of energy.

Can Bess provide a frequency support during load increase contingency?

The simulation results showed that with the help of the proposed control strategy, BESS was enabled to provide a frequency support during the load increase contingency by injecting active power of about 45.4 MW for the compensation of the active power deficit as a result of the power system frequency disturbance.

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