Photovoltaic microgrid control

In view of this, this study proposes a control system architecture suitable for photovoltaic hybrid microgrids (PHM), and conducts in-depth research and experimental verification on it.

This study proposes an improved multi-objective particle swarm optimization (IMOPSO) algorithm for coordinated control and optimizing photovoltaic microgrid dispatch under grid ...

Most existing approaches address either MPPT or battery control in isolation, often under idealized assumptions, without considering the coupled challenges of shading, storage, and load ...

The study establishes a hybrid control approach for a DC microgrid involving PV, BESS, and DC loads, utilizing both the PV system and the BESS. PV will operate as a primary voltage ...

This operational flexibility ensures power supply quality under complex conditions while maximizing the use of solar energy and alleviating grid stress during peak demand. 2. Control ...

This study endeavors to address challenges in the hybrid PV-wind microgrid modeling and control using the interleaving technique and the GA-ANFIS controller, respectively.

Article Open access Published: 06 February 2026 Adaptive MPPT control for reliable transitions between grid connected and islanded operations in PV battery microgrids U. Siddaraj, ...

For the photovoltaic (PV) combined battery energy storage systems (BESSs) system, the paper proposed a nonlinear full-order terminal sliding mode (FOTSM) combined with the passive ...

This paper proposed a comprehensive framework for the design and optimization of standalone solar PV DC microgrids with adaptive storage control for residential applications.

In this work, a nonlinear control strategy was implemented for the regulation of direct-axis current, quadrature-axis current, and the continuous voltage of the converters of a solar plant ...

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