

Title: Several main control methods of microgrid

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A review of recent control techniques, with a focus on AI, optimization, and predictive methods, is presented.

Advanced control strategies are essential to ensure stability, power quality, and optimal energy management in microgrids. These strategies leverage power electronics to regulate voltage, ...

Different control problems in a MG system such as frequency and voltage stability, load balancing, bidirectional power flow with EV integration, power quality improvement, energy ...

In [15], various control strategies used by MGs are thoroughly examined and categorized into four primary groups: decentralized, hierarchical, distributed, and centralized strategies. It ...

MG control methods can be categorized as centralized, decentralized, or distributed, as shown in Fig. 1.2. A short explanation of these control structures is given below. A central controller ...

Model Predictive Control (MPC), Adaptive Sliding Mode Control (ASMC), and Artificial Neural Networks (ANN) are some of the more advanced techniques that make systems more ...

In this framework, microgrids self-optimize when isolated from the main grid and participate in optimal operation when interconnected to the main grid using distributed control methods.

In this chapter, various control methods of the microgrid with respect to microgrid's structure, functions control, and types of power electronic converter will be categorized and analyzed.

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