

Is a secondary voltage control of microgrids based on distributed cooperative control?

Abstract: This paper proposes a secondary voltage control of microgrids based on the distributed cooperative control of multi-agent systems. The proposed secondary control is fully distributed; each distributed generator only requires its own information and the information of some neighbors.

What is secondary control in microgrids?

Secondary control (SC) is the middle layer of the well-known hierarchical control structure, which plays an essential role in maintaining the desired operation of microgrids (MGs). Generally, SC layer is divided into three categories of decentralized, distributed, and centralized control schemes.

What is distributed secondary control for single-bus dc microgrid?

The distributed control of DC microgrid is becoming increasingly important in modern power systems. One important control objective is to ensure DC bus voltage stability and proper current sharing with a reduced communication burden. This paper presents a new event-triggered distributed secondary control strategy for single-bus DC microgrid.

What is secondary voltage and frequency control of microgrids?

The secondary voltage and frequency control of microgrids are designed based on the distributed cooperative control of multi-agent systems. The microgrid is considered as a multi-agent system with DGs as its agents. DGs can communicate with each other through a communication network modelled by a digraph.

How effective is distributed control of dc microgrid?

Simulation and experiment results illustrate the effectiveness of the proposed strategy. The distributed control of DC microgrid is becoming increasingly important in modern power systems. One important control objective is to ensure DC bus voltage stability and proper current sharing with a reduced communication burden.

How can distributed cooperative control improve the reliability of microgrids?

central controller and complex communication networks reduce the system reliability. More reliable and sparse communication networks can be accommodated by applying distributed cooperative control to the design of secondary control for microgrids.

A unified distributed control strategy for dc microgrid operating modes based on the novel integration of distributed controllers for energy balancing is proposed: ... A secondary control adjusts the selected generators' load reference set points ...

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