

What is a multi-agent system based hierarchical control framework for microgrids?

In this paper, we propose a Multi-Agent System (MAS) based hierarchical control framework for Microgrids, where each agent consists of series of DERs (i.e., distributed generations, storage units and loads).

What is a hierarchically distributed control system?

To overcome the challenges of this system architecture, a hierarchically distributed control system is provided, which includes a microgrid control level and an interconnected microgrid control level. A multi-agent system is utilized to manage controller components within an individual microgrid and coordinate with neighboring microgrids.

What is a hierarchical control framework in a microgrid?

To meet the control requirements of different spatial and time scales (such as the interoperability of DERs), the hierarchical control framework, which typically includes the primary, secondary and tertiary control layers, is adopted in the Microgrid.

What is a microgrid?

The concept of Microgrid is formally defined as the composition of distributed generations together with storage devices (flywheels, energy capacitors or batteries) and flexible loads in the distribution system.

Abstract This chapter discusses cutting-edge technologies in agent architecture for microgrid protection, focusing on agent-based hierarchical control. It introduces adaptive multi-agent ...

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In addition, based on the multi-agent control strategy, this paper designs a variety of control strategies that can be switched autonomously for different control objectives of the microgrid ...

The Microgrid is one of the most cost-effective solutions for integrating Distributed Energy Resources (DERs) into distribution systems. The hierarchical control framework, which typically ...

This study provides an overview of the agent concept and multi-agent systems, as well as reviews of recent research studies on multi-agent systems' application in microgrid control systems. ...

In this paper, a control technique for an isolated smart microgrid in a multi-agent based infrastructure is studied. The agents are software abstractions that utilize advanced algorithms such ...

A control scheme called as multi-agent based hierarchical hybrid control is proposed versus the hierarchical control requirements and hybrid dynamic behaviors of the microgrid. The ...

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