

عنوان مقاله:

Using the Lyapunov optimization algorithm in order to reduce the energy cost and the operation cost of local network energy management in the long term

محل انتشار:

سومین کنفرانس بین المللی تفکر سیستمی در عمل (سال: 1402)

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خلاصه مقاله:

In order to improve the level of renewable energy consumption and reduce the simulation error caused by the model prediction, aiming at the problem of synergetic utilization of energy local network including electric vehicles and high penetration photovoltaic grid connected, a virtual energy storage queue based on Lyapunov optimization technology is proposed. Taking electric vehicle load as an example, the time coupling constraint in energy management problem is transformed into queue stability problem for flexible load which does not need to be satisfied immediately. Through the formation of Lyapunov drift penalty function, the energy management problem is simplified. And the control decision is determined according to the real-time operation status, so as to achieve the goal of reducing the operation cost. Simulation and experimental results show that the method improves the utilization of renewable energy, and verifies the effectiveness of the algorithm in reducing operating costs.

کلمات کلیدی:

.Energy Management Strategy, Energy Local Network, Energy Storage Virtual Queue :

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