

عنوان مقاله:

Synchronized Control of Converters in Hybrid AC/DC Microgrid at grid-connected mode

محل انتشار:

کنفرانس ملی فن آوری، انرژی و داده با رویکرد مهندسی برق و کامپیوتر (سال: 1394)

تعداد صفحات اصل مقاله: 9

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خلاصه مقاله:

The hybrid microgrid is made up of both AC and DC networks coupled together through multiple bidirectional converters. AC sources and loads are linked to the AC network while DC sources and loads are joined to the DC network. A hybrid AC/DC microgrid reduces several DC/AC/DC or AC/DC/AC transformations in an exclusive AC or DC network. Energy storage systems could be linked to DC or AC buses. The presented hybrid microgrid can work in a grid-connected or autonomous mode. In this paper, synchronized control for converters of microgrid is introduced for stable system operation under generation and load condition. Particle Swarm Optimization (PSO) algorithm is applied to find out best PI controllers' gains in order to quickly restore and stabilize the voltage of DC bus. A small hybrid grid has been modeled and simulated using the Simulink in the MATLAB and link with PSO algorithm to find best gains. The simulation results show that the system can maintain stable operation under the proposed synchronized control schemes.

کلمات کلیدی:

hybrid AC ، DC microgrid; synchronized control; PI controller; particle swarm optimization

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