عنوان مقاله:
Stability Analysis of AC/DC Microgrids in Island Mode

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خلاصه مقاله:
This study aims to introduce a new structure based on a nonlinear controller for controlling and analyzing the stability of the microgrids. In the proposed model, AC and DC resources and loads are located on two different sides. In addition, an AC/DC bidirectional interface converter is applied to supply loads by AC/DC sources. There are AC/DC products on both sides of the converter and each side can supply the load of the other side via a bidirectional interface converter and its load. Alternatively, an energy storage system is used for the system stability on the DC side. The nonlinear microgrid controller is designed to adjust the AC bus side frequency and the DC bus side voltage properly. In this structure, the coordinated optimal power exchange and precise regulation of control signals lead to constant improvement. Thus, system performance is improved. The results show that the proposed model is efficient for both reduction of the fluctuations and improvement of the system stability

کلمات کلیدی:
AC/DC microgrid, Islanded performance, Microgrid stability, Nonlinear controller