

Abstract

The present invention discloses a diesel-storage independent microgrid and a virtual dynamic synchronous control method and system therefor. An adaptive dynamic synchronous torque and pre-synchronous compensation phase angles are introduced into the energy storage converter control system to realize output voltage and power synchronization before and after parallel connection of the system. By compensating the pre-synchronous phase angles, the phase angles of a diesel generator and an energy storage converter are kept consistent before parallel connection, which reduces current impact during the parallel process. By introducing the adaptive dynamic synchronous torque, after the parallel connection of the system, the virtual torque of the energy storage converter can be adaptively and dynamically adjusted according to the current accelerations of the diesel generator and the energy storage converter under the condition that the inertial parameter of a diesel engine is black-boxed, which relieves the phenomenon of inconsistent changes in angular accelerations due to inertial difference, reduces the difference between the angular accelerations of the diesel generator and the energy storage converter, avoids system power oscillation caused by impact loads, and realizes synchronous power supply of the two.

Fig. 2