ŁOTWA SYSTEM

Three-phase inverter grid-connected surge current suppression

Overview

To resolve this problem, a current quality improvement control strategy, combining capacitor-current feedforward active damping and harmonic virtual impedance reshaping, is proposed by analyzing the mechanisms of system resonance and grid-connected current distortion.Can the grid-connected harmonic current of a three-phase energy storage inverter be suppressed?

Through the research and design in this paper, the grid-connected harmonic current of a three-phase four-wire energy storage inverter can be effectively suppressed. Simulation and experimental verifications were carried out. The following conclusions were obtained. 1.

How does harmonic suppression affect a 3l-npc three-phase four-wire inverter?

In addition, the grid-connected harmonic current and neutral-wire current of a 3L-NPC three-phase four-wire inverter are increased under the action of neutral-wire current backflow, frequency doubling, and fluctuation of the neutral point . There are many studies on harmonic suppression [9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19].

Can grid-connected harmonic current be suppressed with Pi-repetitive control?

Based on the three-phase four-wire 3L-NPC inverter, this paper proposed a controller design approach for grid-connected harmonic current suppression with PI–repetitive control. Through the research and design in this paper, the grid-connected harmonic current of a three-phase four-wire energy storage inverter can be effectively suppressed.

How is a 3l-npc grid-connected inverter simulated?

The three-phase four-wire 3L-NPC grid-connected inverter is simulated based on these four cases. To make the harmonic content comparison more significant under different methods, harmonics are injected into the grid side in the simulation, so that the harmonic content of grid-connected current under the PI control as the basic case is higher.

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