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国家重点基础研究项目

基于逆变型分布式电源控制策略的微电网电能质量控制方法

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摘要：

微电网中负载与电源类型多样，电能质量指标可能会不满足要求，为此提出了利用逆变型分布式电源(inverter interfaced distributed generator，IIDG)控制微电网电能质量的方法。检测IIDG接入点母线上的电压和微电网提供的三相电流，根据其派克变换结果调整逆变器的输出电流，使微电网仅提供负载所需的基波正序有功电流；同时检测并调整IIDG直流侧的电容电压，实现对系统有功功率输出的闭环控制。算例结果表明该方法在补偿无功、降低电压不平衡度和谐波畸变率等方面性能良好。

关键词：

A Power Quality Control Algorithm for Micro-Grid Based on Control Strategy of Inverter Interfaced Distributed Generator

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Abstract:

In micro-grid there are diverse types of loads and power resources, so the requirement to power quality may be unsatisfied in micro-grid. For this reason, a method, which controls power quality of micro-grid by (inverter interfaced distributed generator (IIDG), is proposed. Detecting the volage of the bus where the IIDG is connected and three-phase currents offerred by micro-grid and according to the result of Park transform the output current of inverter is adjusted to make micro-grid only providing fundamental positive-sequence active current that the load requires; meanwhile, the capacitor voltage at DC side of IIDG is detected and adjusted to implement close-loop contorl of active power output in micro-grid. Also the three-phase voltage unbalanced factor of the point of common coupling (PCC) is improved into the admissible deviation region by the proposed control algorithm. The feasibility and accuracy of the proposed method are verified by the PSCAD/EMTDC simulation.

Keywords:

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