Power control of a photovoltaic system connected to a distribution grid in Vietnam

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Abstract

The demand for electrical energy is increasing in Vietnam in recent decades; which has motivated the use of renewable energy sources (RES). Among them, Photovoltaic (PV) energy is becoming a promising energy sources because of their advantages. The connection and use of PV in distribution grid in Vietnam should be in line with the framework of sustainable energy development worldwide. The different techniques of modeling and control of grid connected PV system with objective to help intensive penetration of PV electricity into grid have been proposed so far in different literatures. The current methodologies for optimizing of generation power of PV system are not completely efficient. Therefore many researches are required for overall configuration of the grid connected PV system, the Maximum Power Point Tracking algorithm, the synchronization of the inverter. This paper presents a control technique of the PV generation power by shift of phase angle of the inverter output voltage and grid voltage. In order to synchronize an alternative current output of the PV system's inverter into grid, the proposed method has been described, simulated in MATLAB/Simulink. The work helps to give a study results about interconnection standard, power generation optimization method of PV system into power grid.

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