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January 2014 · International Journal of Applied Engineering Research 9(22)

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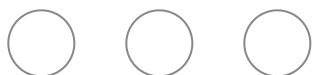
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Abstract

This paper presents the simulation and experimentation of Z-source Cascaded Multilevel Inverter (CMLI) for a Photo Voltaic (PV) generator feeding an isolated load. In the proposed method each H-bridge of conventional CMLI is connected to a string of PV panels via Z-source network named Boost Cascaded Multi Level Inverter (BCMLI). The proposed system focus on the efficient utilization of PV arrays, achieving minimum harmonic distortion, reduced switching stress and reduced filter circuit arrangements. The proposed configuration boost up the PV array voltage and generate high quality AC power for domestic and industrial applications. To achieve better quality of power, Multi Carrier Sinusoidal Pulse Width Modulation (MCSPWM) control scheme is introduced for inverter switching strategy. The proposed system is compared with conventional Z-Source Inverter (ZSI) based PV systems and its performance has been obtained using MATLAB/SIMULINK models. Prototype hardware model of 5-Level BCMLI configuration is developed and its output results are validated.





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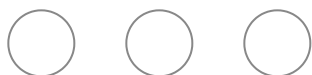
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