Analysis of Asymmetrical 31-Level Cascaded Inverter with SICPWM using ANFIS Controller for Solar PV Applications

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Abstract: *The modified topologies for a asymmetrical cascaded inverter is analyzed with a smaller number of DC voltage sources, power electronic knobs, and power diodes which can generate several levels. The Adaptive Neuro-Fuzzy Inference System (ANFIS) is suggested for asymmetrical modified cascaded inverter topologies to decrease the Total Harmonic Distortions (THD). This technique forbids the changes present in the performance from the modified inverter voltage. The purpose of this research effort is to demonstrate that the significance of ANFIS is to integrate learning to alter the substance of knowledge that meets the learner's needs. The ANFIS model concert calculates using necessary error quantities that display the perfect location required for an improved conviction. For the THD evaluation with and without ANFIS controller, the analysis of thirty-one-level for asymmetrical design was performed. ANFIS controller will be used to obtaining the controlled Root Mean Square (RMS) output from the voltage. The performance of without controller and with ANFIS controlled 31-level asymmetrical cascaded inverter is evaluated and compared with the use of MATLAB/Simulink.*

Keywords: Cascaded Inverter, Root Mean Square Value, Total Harmonic Distortion, Adaptive Neuro-Fuzzy Inference System