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STATCOM Based on Modular Multilevel Inverter Coupled with Smart Detection Technique

Trishna Rajendra Gothe[1] and Prof. W. A Gavhane[2]
PG Scholar, Department of Electrical Power System[1]
Assistant Professor, Department of Electrical Power System[2]
Government College of Engineering Aurangabad, Maharashtra, India

Abstract: *This research studies the multilayer inverter, which uses a novel flexible framework utilizing standard three-phase voltage source inverters to accomplish multilevel operation, and the STATCOM stands for static synchronous compensator. Three different DC wires and an open-end winding configuration are used to link the inverters to a transformer. The inverters in this design will be connected in a cascading fashion. The system stands out not only for its multilayer operation but also for its low blocking voltage requirements for switch ratings. This is because the transformer windings may get twice as much DC capacitor voltage from the proposed STATCOM. Furthermore included is the control system development for the suggested topology. Several simulations and practical experiments will be carried out to evaluate the effectiveness of the current control system and the functionality of the suggested topology. Reactive power compensation in a power system can be used to provide maximum power transfer and voltage regulation..*

Keywords: STATCOM; Modular Inverter; Multilevel Inverter; Detection; DC; Smart detection.