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Abstract: In this paper, the application of three-phase three-cell converter as a shunt active power filter for three-phase three-wire system is described. This multicell converter is capable in keeping capacitor voltages balanced for better operation. It is also able to track the reference current with smaller ripple. By using Instantaneous Virtual Power Equality based control method, the active power filter can be implemented in the system with non-ideal source voltages. After the compensation currents are injected by the active power filter, source currents will be nearly sinusoidal and unity power factor. Simulation are done to verify analysis.

Keywords : *Multicell, active power filter*