**1. Introduction**

The AC/DC power conversion by power electronics converters causes’ serious power quality effects in the power system. This causes at PCC (point of common coupling) power system parameters are affected. Due to this, load end consumers are adversely affected. This can be compensated by using the filters at the front end of AC/DC converter. However, filters are very effectively meet the power quality requirements but these are not an economical solution.[1] The alternative solution to above problem is inherent modification in converter (improved power quality converters or HPFC) to meet power quality features[2]. Since last one decade three phase multi-level HPF converters HB[3], FCC[4], DCC[5] are very extensively used in medium voltage and high power applications such as variable –speed control of AC drives[6], HVDC transmission, FACTS [7], static VAR compensation[8], battery storage systems etc. in this paper special focus on MPC structured converters, specially 5-level Diode Clamped Converter(DCC). However, this 5LDCC shows well satisfactory operation with reactive power transfer application, but having inherent capacitor voltage balancing problem, when it is used for active power transfer applications, especially at high modulation index with UPF operation between utility and DC link capacitors. The relation where m is modulation index and is load power angle shows stable boundary for modulation index versus load power factor angle[9–12].

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