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(57) Abstract :

Abstract The single-phase traction system needs a performance enhancement due to the issues that is involved with the single-phase transformer-based control. Serious power quality issues arise during interfacing of the traction system such as imbalance in current and voltage at the single-phase transformer. The present innovation proposes a solution to the power quality issues due to intermittent switching (disengage and engage) of the drivetrain load. An alternate methodology to supply power to the AC drivetrain system is detailed. On AC traction side MMC (multi module converter) based converter is connected to self-synchronizing inverters. The drivetrain side inverter is developed based on the droop characteristics and it is carried out keeping in mind the perimeters of Indian railway. The AC voltage and current imbalance that occurs in the traction system while sudden connection and disconnection of the traction in the single phase supply with transformer interfacing is a serious power quality issue. The present innovation relates to develop an alternate topology for continuous and steady state supply of power to the AC traction system. The MMC based converter system with the DC link is connected to the self-synchronizing inverters at the AC traction side. The droop characteristic based control of the traction side inverter is developed for the specification of Indian scenario system.

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