

Thesis Title	Analysis of a Capacitor Bank for Prevention of Low Voltage Systems from Resonant Problem
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Abstract

This thesis presents an analysis of resonance problems in low voltage systems. The study used on an analysis of the frequency resonance that occurs in power systems consisting of a transformer and a capacitor bank for power factor improvement. When the current harmonic order is matched with the resonance frequency of the system parallel resonance problem may occur. The parallel resonance will cause a distorted voltage waveform with high voltage peak. This may cause damage to the capacitor because overvoltage and current harmonics cause heat buildup in the capacitor. As a result, the capacitor lifetime is shortened. The results of the analysis will be useful in the design of power systems to prevent the resonance problem.

Keywords: Current harmonic / Power factor / Parallel resonance / Resonance problem