

Power Quality Problems and Solutions

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Abstract

This paper addresses the power quality problems and solutions related to (i) wind power generation and (ii) large industrial customers. Intermittent nature of wind power affects the quality of its electrical power output. The usage of low cost energy saving equipment also generates harmonics and voltage flicker thus affects the quality of supply voltage. A wide range of solutions are being already proposed with the development on power electronic devices and electrical machines. This paper is organized to discuss the (i) power quality problems in brief, (ii) four major developments in wind generator technologies and (iii) solutions to large industrial customers using Dynamic Voltage Restorer (DVR), Active Power Filter (APF) and Static Compensator (STATCOM). Finally development in power electronic devices' control is briefed in each of the devices, which has utilizes these power electronic devices with integrated solutions to solve number of power quality problems.