

DISTRIBUTED SYSTEM AND A - CONCEPT WITH LOW -COST POWER SYSTEM QUALITY ANALYSIS

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Abstract: With the expansion of the power networks due to increase in power demands, the power plants have increased and the distribution of power leads to deterioration of power quality. Correctly identifying the causes, phenomena and present solutions in the area of power quality can help to avoid damage/failure. Also with the development of power network, power-quality monitoring becomes the one of the necessary functions. However, the installation of numerous terminal units usually would increase the cost for the wide-area measurement. In order to promote the deployment of distributed measurement, the lowcost acquisition units are applied in this paper.

Keywords: Power Quality; dips, Interruption, Management, Solutions

I. INTRODUCTION

Qualities of power and with efficient system are the basic requirements of the present time. With the growth of the demand of power, the electrical energy is generated in large quantity. The present scenario demands power with quality, affordable prices with minimum impact on environment. The whole of the network of power system is optimized for better management.

II. POWER QUALITY

Quality of power is influenced by two phenomena. One of them is the random phenomena characterized by the transient over voltage, short and long term interruptions and dips. The other phenomena are the semi permanent and permanent phenomena characterized by rapid or slow changes in the voltage or current and harmonics generated in the system. Providing power quality has become an increasingly complex task because of the increased users and nonlinear receivers. To define appropriate mechanisms capable of accurately reflect the technical aspects of the power quality is difficult. Issues related to the power quality management and five categories of damages which may cause deviations are the harmonic distortions, disruptions, tension over/under acceptable values and transients.

In the development of modern power system, maintaining power quality is of great concern. With the wide spread use of the nonlinear loads, such as electric arc furnaces, AC/DC converters, and other power electronic devices, many power quality problems are present. Since the modern equipments are sensitive to these power-quality disturbances, power utilities and their consumers start to pay much attention to the improvement of power quality in recent years. As a result, the accurate and efficient assessment of power quality becomes one of the important tasks. Recently, the concept of network has been proposed to meet these new requirements through integrated communications, advance control methods, sensing and measurement, and improved interfaces and decision support [1], [2]. Since the technology of advanced metering infrastructure is the fundamental early step to grid modernization, the accurate and efficient monitoring of power quality and system states becomes a crucial task [3]. The wide area measurement is then the conceptual extension of remote monitoring through the numerous integrated communication technologies

III. REASONS OF POOR POWER QUALITY

Dips and Short interruptions- Power suppliers' tries to evaluate the disruptions to the cause of power energy delivered. The consumer evaluates the energy in terms of