EFFECT OF LINE LENGTH TO VOLTAGE SAG PROPAGATION BY MONITORING THE BEHAVIOUR OF PHASE ANGLE JUMPS

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ABSTRACT

Occurrences of voltage sag in power system are one of the most major concerns in power quality problem. Power system faults are the largest contributors to voltage sag and phase angle jumps. Three essential characteristics that voltage sag is commonly described which are sag magnitude (voltage during the fault), sag duration and frequency. Power system network consists of different transformer windings configurations and different line length. During fault, transformers winding configuration and line length may affect the propagation of phase angle jumps in a power system network. Thus the intention of this work is to investigate the propagation of faulted voltage to other busbar under an influence of the transformer connections and the effect of line length impedance to the faulted voltages by monitoring the behaviour of phase angle jumps. Power System Computer Aided Design (PSCAD/EMTDC) will be used to construct and simulate a power system test model network. The test system used will allows major variations in network parameter in order to understand its influence on voltage sag propagation.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

Power quality especially voltage sag seems to be a concern for both the customer and the utilities and become an important component of service reliability. It requires an equal understanding of the issue from all industry players including consultants, equipment manufacturers, the government, the regulator and the consumers itself. A proper monitoring regarding the event of voltage sag can give some awareness and increase knowledge to the consumers. General idea about power quality event can also be gain by consumers through this monitoring. Plus, the significance of this work can develop such cooperation between customer and utility since this event can affect both parties. To minimize the power quality problems need for both parties to play their role.

Voltage sags are one of the most major concerns in power quality problem. Power quality is the physical characteristics of the electric supply provided under normal operating conditions that do not interrupt or disturb the consumer's process. Power quality is term used to direct the entire scope of interaction among electrical suppliers, the environment, the system and product energized, and the consumers. It is more than the delivery of "clean" electric power that complies with industries standards. It involves the maintainability of that power, the design, selection, and the installation of every piece of hardware and software in the