Chapter 7
Classification of Faults in Power Transmission Systems Using Modern Techniques: An Overview

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ABSTRACT

Power system constitute a major part of the electrical system relating in the present world. Every single portion of this system assumes a major part in the accessibility of the electrical power one uses at their homes, enterprises, workplaces, industrial facilities and so on. Any deficiency in power system causes a ton of inconvenience for the maintenance of the system. So transmission system needs a proper protection scheme to ensure continuous power supply to the consumers. The countless extent of power systems and applications requires the improvement in suitable techniques for the fault classification in power transmission systems, to increase the efficiency of the systems and to avoid major damages. For this purpose, the technical literature proposes a large number of methods. This chapter analyzes the technical literature,

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summarizing the most important methods that can be applied to fault classification and advanced technologies developed by various researchers in power transmission systems.

1. INTRODUCTION

Power system is developing in size and complex nature in all divisions such as generation, transmission, distribution and load systems. Generation and usage of electrical energy in nowadays is to a greater extent need than an extravagance. In the seasons of innovative headway anything that qualities must be take well care of. The working of a significant number of the businesses and organizations beginning from ranchers to governments is currently depending to a great extent on a ton of electrical vitality. Continuous supply of power is vital for the functioning of the society which now calls for research and development in this field to guarantee this. Power system can be extensively separated into 4 primary divisions. This is a general order or segment regardless of where we are. These incorporate generation, transmission, distribution and utilization. With regards to generation a ton of endeavors have been taken to enhance the models of power generation. A ton of examination and cash goes into this segment in each nation. This is so on the grounds that if a nation can spare and proficiently create energy, it would give a major help to its economy. The generation of power is accompanied by a couple of misfortunes like eddy current, copper, iron losses and so forth. These are normally taken well care of during generation and don't act like the greatest risk. Consequently the amount of focus and research on these elements satisfies the normal needs.

Discussing the distribution, the energy must be proficiently transmitted to places both residential and modern in the most ideal way that is available. The amount of misfortunes in these regions are additionally less and don't act like a noteworthy risk. And still, after all that there are lots of facilities and devices to guarantee the way that not a lot of energy is lost all the while. The significant components in these areas are transformers both step up and step down. Utilization is the territory which chooses the entire situation of the power system in light of the fact that the estimation of the measure of energy to be produced is landed at just by comprehending what the prerequisite at this end of the power system. Presently the heart of the power system is the transmission. This is the place the significant faults are acquired. The generation happens at specific areas just though the usage happens all over. Along these lines, there is a need to exchange this energy to these places. Transmission now can be in both of the two ways. It can either be through overhead transmission lines or through underground lines. Presently underground lines have but rather been utilized as they are in principle, for the most part as a result of reasons like