PROBABILISTIC LOAD MODEL IN POWER SYSTEM RELIABILITY ASSESSMENT

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"May Allah bless and reward them for their generosity"

ABSTRACT

This final year project describes a proposed research in power system reliability assessment by using a method probabilistic load model. The proposed methodology will attempt to minimize the complicated method and relatively difficult procedure to obtain reliability index, to ensure system's maintain reliability at high level, to know the system position whether is stable or not and beneficial in term of cost, energy, time saving and increase efficiency of supplying the electricity. In this proposed methodology states are sampled according to the probabilistic models of system components whereas system component outages can still be modeled using Markov model. This methodology will identify and analyze the system component outages and outcomes of this resultant analysis will yield a reliability index which is Expected Energy Not Supplied (EENS) in a power system that may be used to describe system's reliability itself and the effect of the load curve model

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INTRODUCTION

1.1 Literature Review

Almost all aspects of daily life in modern society depend on use of electricity. It is so common that electricity consumers have come to expect electrical energy to be supplied continuously with good quality.

Power system reliability [1] is a measurement in duration at a particular time that system still consistence and reliable although the system are affected by the outages component or fault. The consistence and reliable in this context means quality in terms amount of power , frequency or the degree of distortion in electric supply being delivered or received by the end user such as industrial, residential and houses area at a particular duration without interruption[2].

Power system is a huge [3, 4] and complex system consists of generation, transmission and distribution and for the reason that, the probability of fault or outage frequently to arise and affect a large number of customers simultaneously [5]. It is important to keep the reliability at the first place. Reliability itself has indicator which high reliability or low reliability. If the systems have high reliability, the probability of the outage is low and vice versa [6, 7]. To create the system which have high reliability, the system must sustained with the error occur or being forced to fault in maintenance activities.

Hence, due to this matter, this thesis is used the same method as conventional method which is probabilistic approach but this method has been modified and use the software programmed named Matlab and Microsoft Excel to developed and construct the programmed and plotting the graph to dealing with the some parameter such as mean time to failure or repair and load model. This study

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