



اُنِيُوْزِ سِيْتِيْ تِيْكَوْلُوْجِيْ مَارَا  
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# ISOLATION AND RESTORATION PROCEDURES OF DISTRIBUTION SYSTEM

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Last but not least, I would like to take this opportunity to express my appreciation to those that directly or indirectly contributed towards the progress of this project.

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## **ABSTRACT**

Nowadays, the concern for reliability of power distribution system has been high within consumers and utility. Power system reliability is defined as the performance for power system to supply electricity to consumers which comprises of generation, transmission and distribution system. Power system reliability can be described by two basic functional attributes which are 1) adequacy and 2) security for consumers. In power system, one of important things for the designers and engineers in designing and modeling a power system is isolation and restoration procedures especially for distribution power system. Isolation and restoration procedures are very important to power distribution reliability in maintaining the availability of power supply. In order to find the reliability of distribution system, a case study has been performed on a two distribution substation radial feeder which consists of 2 substations with 15 load points. For further analysis, it is assumed that there are not the load transfer occurrences in the system.

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# CHAPTER 1

## INTRODUCTION

### 1.1 INTRODUCTION

On August 2003, the biggest blackout occurrence in history affecting northeastern America has created a havoc which causes an economic crisis within the country. Communication, manufacturing, and other sectors involving countries economy has failed and cannot operate as usual [1]. A report on this incident revealed that the duration of restoring this system to become normal operation was lengthy and complicated. In September 1992, Malaysia suffered a total power blackout which caused by lightning strike at transmission facility. This phenomenon causes a rolling failure in the transmission and distribution system. This blackout failure has created an immediate worry for government and business leaders about how it would affect investors' images of Malaysia's infrastructure supply system. To increase the reliability of power distribution system, Malaysia's government decided to introduce private independent power plant (IPPs) to enter the electricity field and sell their electricity to Tenaga Nasional Berhad (TNB) for transmission and distribution [2].

The reliability in electricity supply is an important part especially for distribution system. The statistic shown in a few research and studies shows that the interruptions in customers electricity power supply mostly come from the distribution systems [3]-[4]. Others' study showed that, about 80% of all load interruptions is cost by failure distribution system at the final stage between customer and transmission line [5].