



ISOLATION AND RESTORATION PROCEDURES OF
DISTRIBUTION SYSTEM BASED ON PARTIAL RESTRICTED
SUBSTATION CAPACITY

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ABSTRACT

The management of electricity distribution has to cope with rapid changes in the business environment, due to the liberalization in the electrical energy market. This will cause difficult for modeling the power system during the restoration process following the major outage. The modeling power system has three stages: 1) Generation 2) Transmission 3) Distribution. This paper is discussed the impact of distribution system capacity on load point reliability and the cost of load point interruptions. They also talk about why we use the isolator compared the circuit breaker. The main goals is maximizes the amount of load that can be restored after a grid blackout, substation outage, and distribution feeder line section outages. The outage in the system can give impact to the cost of the maintenance. The case study in this paper discusses about the when the fault occurs in the system, some of the load is transferred to another substation.

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CHAPTER 1

INTRODUCTION

1.0 Introduction

In power system, if any fault occurs in the feeder section, the technician must analysis of the problem. To analysis the problem, a technician must isolate the section fault from other section. This is for the avoidance of defective parts affects the undamaged another part. Isolation is a separate the fault section from another load in the power system. Then the fault available must be restoring to the system to function normally. In the system must be has the procedures to analysis the problem, isolated and restoration the section fault.

The maintenance costs are very important in power system because it is very high and may be can reduce profits. Profitability is very important in business because the business can grow profits and avoid losses [3]. This paper is related to the maintenance cost in the power system when the load has not transfer and transfer to other substations. It also discussed about the outage load when another load feeder has the fault [4]-[7]. This means that if a fault occurs on the section feeder load 1 and whether load point 2 will be involved. If the load point 2 is involved, it must repair or switching activities only. The ability of a distribution system configuration to transfer loads during outage depends on the substation design and operational procedures [8]. Some of common distribution substation configuration used by utilizes are:

1. Single transmission source : single transformer
2. Single transmission source : dual transformer
3. Dual transmission sources : single transformer

Dual transmission sources: dual transformer

1. Dual transmission sources : dual transformer with tiebreakers
2. Dual transmission sources : dual transformer with three breakers
3. Dual transmission sources : single transformer with ring bus