MVAR MANAGEMENT ON LOAD BUS FOR MEETING VOLTAGE STABILITY MARGIN USING CONTINGENCY ANALYSIS METHOD

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ABSTRACT

This Thesis presents Mvar management load bus for meeting voltage stability margin using contingency method. The study involves the development of algorithm to manage the VAR value at the load bus to identify the collapse point. Therefore power system researchers striving around the clock solely to propose the initiative steps in order to ensure in alleviating those sort of problem systematically. In this study, contingency due to line outage is implemented technique in prolonging the voltage capability due to load increment. The technique has been tested using IEEE 14 Reliable Test System (RTS) in demonstrating its capability.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In every aspect of power utilisation, stability of the system has frequently been monitored. The chronology of voltage instability give rise to a chain effect such as voltage collapse, hence improperly handling could caused major blackout in all over areas. Furthermore, each power system utility has stipulated its security range so that, an equilibrium condition achieved. Nevertheless, seeking a new method has encouraged many researchers to switch their interests into power system security research program. However, to maintain stability without deteriorating the total amount of power demand in the system is impossible because by the rule of thumbs, load is always increasing every day [1]. Furthermore, implication of the changes of the overall load in the system sometimes is seen to be a cascading failure since line outage could lead to large blackout in the system [2]. Therefore an initial outage using a Galton-Watson line outage branch model has discovered successively simulation analysis due to the impact of cascading failure effect. Besides, cascading effects could be monitored by implementing a cogenerator model. In this technique, a detail three phase transformers model is applied in order to scrutinise the imbalance of inherent generator phase at a large-scale distribution system while major power interruption or blackout could be avoided [3]. Admissibility of the fast response on the system security in mitigating system failure due to line overloads