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VOLTAGE STABILITY PREDICTION USING ARTIFICIAL NEURAL NETWORK FOR IEEE 69-BUS AND 30-BUS

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ABSTRACT

This project discusses the voltage stability prediction of a power system using Artificial Neural Network (ANN). Voltage instability is the one of the causes for a power system to breakdown. This incident is caused by severe low voltage condition which leads to blackouts to all system. The voltage stability prediction is essential in power system planning in order to prevent voltage collapse due to instability of voltage in power system. The voltage stability for each bus is determined by Voltage Stability Index (VSI). The value obtain from the VSI can determine the voltage stability for each bus in the system. There are two types of bus that will be use to determine the voltage stability prediction in power system which is 69-bus and 30-bus. A comparative study was conducted with Artificial Neural Network (ANN)-based prediction.

Keywords – Artificial Neural Network (ANN), Voltage Instability, Voltage Stability Prediction, Voltage Stability Index (VSI), Comparative Study

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CHAPTER 1

INTRODUCTION

1.1 PROJECT BACKGROUND

An Electric Power System is the network that provides power to consumers and users which can be divided into:

1. ***Generation***
   Generates power to supply the power to the loads.

2. ***Transmission***
   Carries the power from the generating centres to the load centres

3. ***Distribution***
   Feeds the power to nearby homes and industries.