ABSTRACT

This study discusses the performance analysis, stability analysis and robustness analysis of a single machine infinite bus system (SMIB) electric system West Sumatra . SMIB system is an electrical power subsystem consisting of one or more generators are connected to an infinite bus. SMIB system is a subsystem that most affect the performance of the power system . The analysis includes performance analysis in the time domain, frequency domain analysis of the performance, stability analysis and robustness analysis. Performance, stability and robustness of a factor - an important factor that must be considered in the operation of a single machine infinite bus system (SMIB). Performance, stability and robustness of the power system will be disturbed if there is interference . There are 2 types of disturbances that often occur in the operation of electric power systems including transition disorders and minor annoyances . If these disorders continue to occur continuously at any time will result in a change in the parameters - parameters in the SMIB system , especially changes in voltage. Change parameter - these parameters can lead to SMIB will be disrupted and the resulting system can no longer operate normally after the crash. By using the method of Linear Quadratic Regulator (LQR), Linear Quadratic Regulator method with weight function on the output (LQRy) and the data - the data system of a single machine infinite bus (SMIB) electric system West Sumatra will be analyzed performance, stability and robustness. The analysis shows that the performance, stability and robustness of the system SMIB electric system West Sumatra using the method of Linear Quadratic Regulator (LQR) and Linear Quadratic Regulator methods with weight function on the output (LQRy) is better.