TRANSPORT STABILITY ANALYSIS AND LOAD SHEDDING MECHANISM AT PT. PERTAMINA (PERSERO) REFINERY UNIT (R.U.) VI BALONGAN JAWA BARAT

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ABSTRACT

PT. Pertamina (Persero) R.U. VI is one of the oil refinery unit that is owned by PT. Pertamina in Balongan, West Java. In order to support its operation, PT. Pertamina RU VI Balongan operates 4 units of steam turbine generator with a capacity of 22 MW each and 1 steam turbine generator unit with a capacity of 22 MW in reserve. In PT. Pertamina RU VI Balongan, transient stability has not been analyzed in depth so that the transient stability studies need to be conducted to determine the stability of the system during a transient stability disturbance. In this final project, the analysis focused on the transient stability include voltage stability, frequency stability and rotor angle stability during generator outage, motor starting and Short circuit. From the simulation result show that in the case of generator outage resulting in an unstable system. To restore the system stability, in case of 1 generator outage require 2 step loadshedding by removing 25.225% of total loads (21.393 MW). While in the case of 2 generators outage require 3 step loadshedding by removing 48.075% of total loads (41.131 MW). In the case of short circuit at voltage level 10 KV result in unstable system that is necessary to do 2 step loadshedding. In addition short circuit at voltage level 20 kV, voltage at main bus drop to 5.31% and stabilized at 101.25%. In the case of motor starting, the voltage dropped to 86.8% and stabilized at 95%.

Keywords : transient stability, transient disturbance, load shedding.
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