ABSTRAKSI

Gangguan SUTET Balaraja – Gandul # 1 tanggal 24 Februari 2017 terjadi bersamaan dengan dilakukan *energize* setelah proses penggantian CT 7B2. Pada gangguan tersebut sistem proteksi yang bekerja adalah rele CCP-3a *(circulating current protection-3a).* Dampak gangguan mengakibatkan kehilangan daya listrik sebanyak 1.005 MW selama 27 menit dengan total potensi kerugian perusahaan sebesar 452.250 kWh.

Rele CCP-3a memiliki 2 *setting* tegangan, yaitu *setting* tegangan untuk stabilitas gangguan eksternal (Vs) sebesar 325 volt dan *setting* tegangan untuk rangkaian (V) sebesar 100 volt. Arus hubung singkat maksimum saat ini di GITET Gandul sebesar 48.009,32 ampere. Dari data tersebut maka hasil perhitungan Vs diperoleh 512,6 volt sehingga harus dilakukan *resetting* pada Vs.

Berdasarkan analisis menggunakan metode RCPS (*Root Cause Problem Solving*) diketahui bahwa penyebab terjadinya gangguan karena kabel *core* 4 CT-B2 fasa T polaritasnya terbalik. Hal ini mengakibatkan ketidakstabilan arus rele CCP-3a sehingga tegangan masing – masing fasa pada rangkaian (V) berbeda, yaitu phasa R = 0 volt, fasa S = 0 volt dan fasa T = 103,92 $\angle$-90^{o} volt. Karena tegangan V pada fasa T sudah melebihi *setting* maka rele CCP-3a bekerja.

Untuk mencegah terjadinya ketidakstabilan arus maka setelah pekerjaan penggantian CT harus dilakukan pengujian *stability* dan *unstability* sehingga rangkaian sekunder arus dari box sekunder CT sampai ke rele CCP dapat dipastikan sudah benar.

Kata kunci : Proteksi rele CCP, *resetting* tegangan untuk stabilitas gangguan eksternal (Vs), polaritas rangkaian arus terbalik, pengujian *stability* dan *unstability.*

ABSTRACT

Faul of SUTET Balaraja - Gandul ǁ 1 dated February 24, 2017 coincided with energize after the replacement of CT 7B2. In such disturbance the working protection system is CCP-3a (circulating current protection-3a) relay. The impact of the disturbance resulted in a loss of electrical power of 1.005 MW for 27 minutes with a total potential loss of 452,250 kWh.

Rele CCP-3a has 2 voltage settings, namely setting the voltage for external disturbance stability (Vs) of 325 volts and setting the voltage for the circuit (V) of 100 volts. The current maximum current short circuit in GITET Gandul is 48,009.32 amperes. From the data then the results of calculations Vs obtained 512.6 volts so that must be done resetting on Vs.

Based on the analysis using the RCPS (Root Cause Problem Solving) method, it is known that the cause of the interruption due to the core 4 CT-B2 cable phase T polarity is reversed. This causes the unstability of the CCP-3a relay current so that the respective phase voltages in the circuit (V) are different, the phase R = 0 volts, phase S = 0 volts and phase T = 103,92 $\angle$-90^o volts. Since the voltage V in phase T is already above the setting, the CCP-3a releases work.

To prevent the occurrence of current unstability then after the replacement work of CT should be done stability and unstability testing so that the secondary circuit of currents from box CT up to the CCP relay can be ascertained correct.

Keywords: CCP relay protection, resetting voltage for external noise stability (Vs), reverse current circuit polarity, stability and unstability testing.