

ABSTRACT

Process automation sync generator an important role in achieving the reliability and efficiency of power plants to parallel with the grid. Failure in automation synchronization, can damage to the generator and to influence supporting equipment generator as a result of the reverse power. Automation settings by synchronizing Automatic Synchronizer by comparing the voltage, frequency and phase angle difference of generator to the network automatically. Automatic Synchronizer gives orders to the AVR and governor in order to achieve synchronous conditions and close the generator circuit breaker.

Rated voltage, frequency and turbine generator unit 1 that have failed, compared with the generator unit 2 which managed to achieve synchronous conditions. Comparison shows the gate vane unit 1 provides the opening value of 6.998% - 9.765%, so that the generator output has a value of Hz- 50.20 and 50.46 Hz, frequency deviates from 50.09 Hz network, therefore electro-hydraulic governor unit 1 needs to be done recalibration due to the frequency generator unit 1 did not achieve stability at the time of synchronization.

Keywords: Automatic synchronization, Voltage, Frequency, Automatic synchronizer, electro-hydraulic governor

INTISARI

Proses otomasi sinkronisasi generator memegang peran penting dalam mencapai kehandalan dan efisiensi pembangkit listrik untuk bekerja parallel dengan jaringan PLN. Kegagalan dalam otomasi sinkronisasi, dapat menyebabkan kerusakan pada generator serta mempengaruhi peralatan-peralatan pendukung generator karena akibat adanya *reverse power*. Pengaturan otomasi sinkronisasi dilakukan oleh *Automatic Synchronizer* dengan membandingkan tegangan, frekuensi dan beda sudut fase generator dengan jaringan secara otomatis. *Automatic Synchronizer* memberikan perintah kepada AVR dan *governor* sehingga tercapai kondisi sinkron dan menutup CB generator.

Nilai tegangan, frekuensi dan turbin generator unit 1 yang mengalami kegagalan, dibandingkan dengan nilai generator unit 2 yang berhasil mencapai kondisi sinkron. Perbandingan menunjukkan *gate vane* unit 1 memberikan nilai pembukaan 6,998 % - 9,765%, sehingga output generator memiliki nilai 50,20 Hz- 50,46 Hz dan menyimpang dari frekuensi jaringan 50,09 Hz, oleh sebab itu *electro-hydraulic governor* unit 1 perlu dilakukan kalibrasi ulang karena frekuensi generator unit 1 tidak mencapai kestabilan pada saat sinkronisasi.

Kata Kunci : Sinkronisasi otomatis, Tegangan, Frekuensi, *Automatic synchronizer*, *electro-hydraulic governor*.