

ABSTRAK

Sistem proteksi berperan penting dalam menjaga kehandalan jaringan distribusi listrik. *Overcurrent Relay* (OCR) merupakan salah satu peralatan yang digunakan sebagai pengamanan jaringan distribusi 20 kV.

Feeder Cikande dilengkapi peralatan proteksi OCR yang terpasang di *outgoing* trafo 3 GI Balaraja, di PMT *Feeder* Cikande dan di CBOG gardu distribusi BL 3. Berdasarkan data PT. PLN (Persero) UP3 Cikupa, terdapat 5 kali gangguan hubung singkat yang menyebabkan *feeder* Cikande trip. Hal ini dikarenakan OCR pada gardu BL 3 tidak bekerja ketika gangguan terjadi pada zona proteksinya. Permasalahan koordinasi OCR dapat dianalisa dengan menganalisis koordinasi sistem proteksi pada *feeder* Cikande. Analisa dilakukan dengan cara menghitung ulang *setting* OCR berdasarkan arus hubung singkat yang timbul menggunakan perhitungan matematis dan ETAP.

Berdasarkan hasil optimalisasi menggunakan ETAP diketahui koordinasi OCR sudah bekerja sesuai zona proteksinya. *Time grading* hasil optimalisasi antar OCR adalah 0,488 s, hal ini sesuai dengan standar IEC 60255 yaitu 0,3 – 0,5 s.

Kata Kunci : *Overcurrent Relay*, koordinasi proteksi

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ABSTRACT

The protection system plays an important role in maintaining the reliability of the electricity distribution network. Overcurrent Relay (OCR) is one of the equipments used as a protection distribution network of 20 kV.

Cikande feeder is equipped with OCR protection equipment installed at outgoing transformer 3 Balaraja Substation, at PMT Cikande Feeder and at CBOG substation distribution of BL 3. Based on data from PT. PLN (Persero) UP3 Cikupa, there were 5 times the short circuit interference that caused the Cikande feeder tripped. This is because OCR on BL 3 substation does not work when interference occurs in its protection zone. OCR coordination problems can be analyzed by analyzing the protection system coordination in the Cikande feeder. The analysis is done by recalculating the OCR settings based on the short circuit current that arises using mathematical calculations and ETAP.

Based on the optimization results using ETAP, it is known that OCR coordination has worked according to the protection zone. The grading time of the results of optimization between OCR is 0.488 s, this is in accordance with the IEC 60255 standard that is 0.3 - 0.5 s.

Keywords : *Overcurrent Relay, coordination of protection*

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