

OPTIMIZATION OF CAPACITOR PLACEMENT ON MEDIUM VOLTAGE 20 KV IN PT.PLN (Persero) AREA BINJAI FEEDER BG 02

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ABSTRACT

In the medium voltage distribution network, especially the medium-voltage airway (SUTM) serves the loads contained in the distribution substation. The load on each distribution substation is not the same magnitude either in terms of active power or reactive power. By placing the capacitor in the medium voltage network it is expected that the reactive power load can be reduced and the loss of power in the network is also reduced. In this paper we will present a technique to put the optimum capacitor in the network, in the sense of generating the minimum voltage drop. the BG 02 repeater for the condition before the capacitor is installed is on bus 127 on the transformer SB 31 of 10.295%. After the optimum capacitor placement in BG 02 BG 02, the largest voltage drop on the BG 02 refuted 3.895% to 6.4% at Bus 127 on transformer SB 31. Loss of network power loss decreased by 15.6% for active power and decreased by 19.3% for reactive power and increased power factor of network to 0.907 from previous 0.822. From the result is in accordance with SPLN 1: 1995 for the maximum voltage drop of 10%.

Key Words : Power Losses, Voltage Drop, Capacitor, Reactive Power, Active Power