

OPTIMIZATION OF CAPACITOR BANK INSTALLATION TO IMPROVE POWER LOSS IN SAWO FEEDERS USING THE FLOWER POLLINATION ALGORITHM METHOD

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ABSTRACT

The sawo feeder is a 20kV feeder at PT PLN (Persero) Rumbia Customer Service Unit, Central Lampung. Power loss was found which is one of the problems in a network/feeder. Power loss is a loss during the distribution of electrical energy caused by several factors. The higher the power loss, the greater the financial loss experienced. There are several ways to reduce power loss, one of which is by installing a capacitor bank on the feeder bus. Analysis is needed to determine the quantity and quality of the capacitor bank to avoid losses due to the fairly expensive price of the capacitor bank. The analysis used to determine the best capacitor bank capacity and the best bus placement on the sawo feeder is the Flower Pollination Algorithm (FPA) method. This study uses 3 times analysis, namely 1 capacitor, 2 capacitors, and 3 capacitors. From the 3 analyzes that have been done, the most profitable for the sawo feeder is by installing 2 capacitors with details of capacitor 1 placed on bus 10 with a value of 2.99521 MVar and capacitor 2 placed on bus 47 with a value of 1.40671 MVar sawo feeder losses decreased by 166 kW from 832.6 kW to 666.6 kW.

Keywords: *Analysis, Flower Pollination Algorithm, Feeder, Capacitor Bank*