

PENENTUAN KAPASITAS DAN LOKASI OPTIMAL DISTRIBUTED GENERATION PADA JARINGAN DISTRIBUSI UNTUK MENGURANGI RUGI – RUGI DAYA AREA YOGYAKARTA

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ABSTRAK

Penentuan lokasi dan kapasitas optimal Distributed Generation (DG) merupakan salah satu solusi untuk meningkatkan kualitas sistem distribusi tenaga listrik. Penelitian ini mencoba menemukan solusi terbaik pemasangan Distributed Generation (DG) pada sistem distribusi menggunakan metode optimasi Flower Pollination Algorithm (FPA) untuk mengurangi rugi – rugi daya. Metode FPA adalah metode optimasi dengan meniru fenomena penyerbukan (polinasi) bunga pada alam. Pada percobaan optimasi penempatan lokasi dan kapasitas DG penempatan optimal pada bus 3 yaitu Gardu Induk Gejayan dengan kapasitas sebesar 4,9409 MW serta didapatkan rugi rugi daya pada sistem turun sebesar 0,011MW. Dari hasil optimasi dapat disimpulkan pemasangan DG mampu menurunkan rugi – rugi daya pada sistem distribusi area Yogyakarta.

Kata kunci : Distributed Generation, Penentuan Lokasi dan Kapasitas, Flower Pollination Algorithm

**THE DETERMINATION OF CAPACITY AND GENERATION DISTRIBUTED OPTIMAL LOCATIONS
IN THE DISTRIBUTION NETWORKS TO REDUCE POWER LOSS
IN THE AREA OF YOGYAKARTA**

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ABSTRACT

Determining the capacity and generation distributed optimal locations (DG) is one solution to improve the quality of the power distribution system. This research aims at finding the best solution for installing Distributed Generation (DG) on the distribution system using the Flower Pollination Algorithm (FPA) optimization method to reduce power losses. The FPA method is an optimization method by mimicking the phenomenon of pollination (pollination) of interest in nature. In the optimization experiment for location placement and DG capacity, the optimal placement on bus 3 is Gejayan Substation with a capacity of 4.9409 MW, and the power loss obtained in the system drops by 0.011MW. From the results of the optimization, it proved that the DG installation is able to reduce power losses in the Yogyakarta area distribution system.

Keywords: Distributed Generation, Determination of Location and Capacity, Flower Pollination Algorithm