DETERMINATION OPTIMAL MVAR OF SVC IN 500 KV JAVA BALI TRANSMISSION SYSTEM USING ARTIFICIAL BEE COLONY ALGORITHM

By : Fajar Galih Indarko
NRP : 2207100521
Supervisor : Prof. Dr. Ir. Imam Robandi, MT.

ABSTRACT

The increasing demand of electric energy and the fast development of power electronic technology has made Flexible AC Transmission System (FACTS) devices are widely used in the power system. One type of FACTS device is Static Var Compensator (SVC) that mostly used to reduce power losses in transmission line. In this paper, Artificial Bee Colony (ABC) algorithm is used to determine optimal MVar of SVC in 500 kV Java Bali transmission system. Optimization process performed on parameter of SVC ratings, so in that way can be obtained rating value of SVC in order to improve voltage profile and minimize transmission losses. Simulation results using Artificial Bee Colony (ABC) Algorithm shows the power losses drop by 13.018 + j144.277 MVA for the first case and 16.873 + j185.229 MVA for the second case from the existing total power losses of 500 kV Java Bali transmission system.

Keywords: Static Var Compensator (SVC), 500 kV Java Bali Transmission System, Artificial Bee Colony (ABC) Algorithm