عنوان مقاله:

TCSC Design Using ABC Optimization Algorithm to Solve Optimal Multi-objective Load Distribution

محل انتشار:

هشتمین کنگره ملی تازه های مهندسی برق و کامپیوتر ایران (سال: 1400)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Asef Zare - *Department of Electrical Engineering, Islamic Azad University, Gonabad, Iran*

Narges Shafaei - *Department of Electrical Engineering, Islamic Azad University, Gonabad, Iran*

Rasoul Kashfi - *Department of Electrical Engineering, Islamic Azad University, Gonabad, Iran*

Mahmood Sadoughi - *Department of Electrical Engineering, Islamic Azad University, Ferdows, Iran*

خلاصه مقاله:

In this paper, location and size of thyristor-controlled series compensator (TCSC) which is one of the most common series type of flexible AC transmission systems (FACTS) devices, are determined as a new control variable beside the basic control variables which involve both continuous and discrete variables for solving optimal power flow (OPF) problem in electric power systems. Different objective functions are used in this paper such as active power loss minimization, voltage profile improvement and fuel cost minimization. Optimization problem is formulated in both form single and multi-objective and weighted sum method is used for solving multi-objective type while objective functions have been normalized. In the proposed approach, artificial bee colony (ABC) algorithm is employed as the main optimizer for optimal adjustments of the power system control variables and optimal location and size of the TCSC for solving OPF problem while different constraints related to control and dependent variables are satisfied. Proposed method is tested with the IEEE ۳۰-bus system and the simulation results obtained show the validity and effectiveness .of the proposed method for any type of the objective functions

کلمات کلیدی:

Optimal power flow, Allocation of TCSC, Artificial bee colony algorithm