

عنوان مقاله:

FACTS Devices Allocation Using a Novel Dedicated Improved PSO for Optimal Operation of Power System

محل انتشار:

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خلاصه مقاله:

Flexible AC Transmission Systems (FACTS) controllers with its ability to directly control the power flow can offer great opportunities in modern power system, allowing better and safer operation of transmission network. In this paper, in order to find type, size and location of FACTS devices in a power system a Dedicated Improved Particle Swarm Optimization (DIPSO) algorithm is developed for decreasing the overall costs of power generation and maximizing of profit. Thyristor-Controlled Series Capacitor (TCSC) and Static VAR compensator (SVC) are two types of FACTS devices that are considered to be installed in power network. The purpose of this study is reducing the power generation costs and the costs of FACTS devices with considering different load levels. The main bases of this paper are using of Optimal Power Flow (OPF) and DIPSO algorithm to techno-economical analysis of the system for finding optimal operation. The Net Present Value (NPV) method is used to economic analysis of the system and power losses and maximum possibility load demand are considered for technical analysis. The proposed method is implemented on IEEE 57-bus test system and the achieved results are compared with genetic algorithm and particle swarm optimization methods to illustrate its effectiveness.

کلمات کلیدی:

Dedicated Improved PSO, FACTs Allocation, NPV Index, Techno-economical Analysis, OPF

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