I.I. Ali
Electrical Engineering Department, University of Technology, Baghdad, Iraq.
30037@uotechnology.edu.iq

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Optimal Location of SSSC Based on PSO to Improve Voltage Profile and Reduce Iraqi Grid System Losses

Abstract- *This search aims to study the effects of (SSSC)"static synchronous series compensator– one of the FACTS devices" – on reducing the power losses and improving voltage profile of Iraqi national grid system. Proposed particle swarm optimization ("PSO") to determine the optimum location of "SSSC" devices based objective function that depends on the power and voltage as fitness. The proposed algorithm is checked on the IEEE- 9bus. Then is applied on the Iraqi national grid. The results show the ability of the proposed method to determine the optimum location of static synchronous series compensator (SSSc) that reduced losses of active power and improve the bus "voltage profile". The proposed algorithms are implemented by using MATLAB package version 7.10*

Keywords- *static synchronous series compensator (SSSc), PSO and active power losses.*

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