Abstract

This paper addresses the optimal placement of static var compensators (SVCs) in a power system network in such a manner that power loss, voltage deviation and installation cost is minimized. Voltage deviation is minimized by improving voltage profile. The aim of this study is to minimizing the power loss, voltage deviation and installation cost under critical contingency and increasing load condition in power system network. The multi-objective function is carried out in this study. RCGA is used to solve the optimization problem in this paper which is one of the heuristic methods. Real Coded Genetic Algorithm optimization helps in determining the location of the SVC. The proposed approach has been tested on IEEE-30 Bus test system with different objectives. It has also been observed, we can apply this algorithm to larger systems with computational difficulties. The obtained results show that the suggested method of SVC placement is effective in reducing the real power loss, voltage deviation and installation cost during normal as well as critical contingency cases.

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- Shishir Dixit, Laxmi Shrivastava, Ganga Agnihotri, Rahul Dubey, "Ideal Location of Shunt FACTS Devices Using Heuristic Optimization Techniques: A Literature Survey;"

Index Terms

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Artificial Intelligence
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FACTS devices  Genetic Algorithm  SVC  Voltage Profile  Voltage deviation
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