Abstract

The operating conditions of the present day distribution systems are closer to the voltage stability boundaries due to the ever increasing load demand. This article presents a bio-geography based optimization (BBO) algorithm for determining the optimal locations and sizing of static and/or switched shunt capacitors with a view to enhance voltage stability of distribution systems. Biogeography deals with geographical distribution of biological species. Mathematical models of biogeography portray how species arises, migrates from one habitat to another and gets smeared out. The BBO algorithm searches for global solution through migration and mutation. The superiority of this approach is demonstrated by testing the algorithm on 15, 33 and 69-node distribution systems.

References


**Index Terms**

Computer Science  
Power Systems

**Keywords**

voltage stability, radial distribution systems, capacitor placement