

## عنوان مقاله:

Enhancement in Voltage Stability Using FACTS Devices Under Contingency Conditions

## محل انتشار:

مجله بهره برداری و اتوماسیون در مهندسی برق، دوره 12، شماره 4 (سال: 1403)

تعداد صفحات اصل مقاله: 14

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## خلاصه مقاله:

The voltage stability margin (VSM) is an important indicator to access the voltage stability of the power system. In this paper, Flexible AC transmission systems (FACTS) devices like static synchronous compensator (STATCOM), static synchronous series compensator (SSSC), and unified power flow controller (UPFC) have been deployed to enhance the VSM of the power system. The placement of the FACTS devices is decided based on contingency raking. For the top five critical contingencies, the most severe bus is selected based on bus voltage stability criticality index and degree centrality methods. The critical line is decided based on the values of the line stability index, fast voltage stability index, and line stability factor. The STATCOM and shunt part of the UPFC are placed at the critical bus, whereas the SSSC and series part of the UPFC are placed at the critical line for enhancing voltage stability. The proposed method for voltage stability enhancement using FACTS devices is tested and validated on the IEEE-۱۴ bus system and the NRPG-۲۴۶ bus system at different system loading scenarios. The impact of the placement of FACTS devices is validated in terms of VSM improvement.

## کلمات کلیدی:

Contingency, FACTS, Indices, Voltage Collapse, VSM

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