

MULTI-EVENT CONTINGENCY ANALYSIS FOR VOLTAGE STABILITY STUDY

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ABSTRACT

Contingency analysis is one of the important components in voltage stability studies. This is due to the fact that, contingency can cause a system to experience voltage instability condition. One of the possible events is that, when a line is on outage, the corresponding load bus will experience a stress condition leading to overall system instability. Prior to the contingency analysis, system constraints will be first identified. Consequently contingency analysis will be performed which could be caused by line or generator outage or load curtailment. Voltage stability studies will be then conducted to the system with all these scenarios.

The following is the main techniques that have been used for the voltage stability calculations:

- Static Voltage Stability Index (SVSI).
- Fast Voltage Stability Index (FVSI).
- Line Stability Index of Moghavvemi.
- Line Stability Factor of Mohamed.

← Name of Index?

In this project, the proposed technique used is Static Voltage Stability Index(SVSI). In voltage stability studies, analysis is one important aspect where a large number of "next contingencies" like line outage, transmission outage and generator outage are simulated to determine if the system is in normal state or alert state. Algorithm will be developed and codes will be implemented in MATLAB. An IEEE transmission system will be taken as the test specimen of the study. Finally, contingencies caused by individual or composite events will be compared in order to investigate the most credible contingency in the system.

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