STATCOM Model against SVC Control Model Performance Analyses Techniques by Matlab

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Abstract: Principal objective of this paper is to investigate the behavior of STATCOM against SVC controller by setting up new control parameters. Essentially, STATCOM, and SVC linear operating ranges of the V-I and V-Q as well as their functional compensation capabilities have been addressed to meet operational requirement with certain degree of sustainability and reliability. Hereby, the other operating parameters likewise transient stability, response time, capability to exchange real Power and Power Losses have also been addressed in STATCOM against SVC control models. In addition to that, STATCOM-Controller’s pragmatic response has been identified and determined its reliability level to maintain full capacitive output current at low system voltage. Therefore, it indicates that STATCOM device has more effectiveness than the SVC in improving transient stability (first swing).

Key words: FACTS Devices - Matlab, Measuring Transfer Function - Control Transfer Functions – STATCOM

Introduction: STATCOM is defined by IEEE as a self commutated switching power converter supplied from an appropriate electric energy source and operated to produce a set of adjustable multiphase voltage, which may be coupled to an AC power system for the purpose of exchanging independently controllable real and reactive power. The controlled reactive compensation in electric power system is usually achieved with the variant STATCOM configurations. The STATCOM has been defined as per CIGRE/IEEE with following three operating structural components. First component is Static: based on solid state switching devices with no rotating components; second component is Synchronous: analogous to an ideal synchronous machine with 3 sinusoidal phase voltages at fundamental frequency; third component is Compensator: provided with reactive compensation.[1],[2]

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