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Patent Search

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Abstract:
 Currently all FACTS devices are aiming at improvement in power transmission system performance. A simple, robust and flexible device has been invented for further in continuation of research in power sector. Current invention related to series capacitive compensation, which is novel technique has been discovered. This simple device is used to get rid of all complexity in control of various FACTS devices can be avoided and can be effectively implement it in practical systems and is most use full in all no load and loading conditions of Electric Transmission Systems. The novel invention related to implementation of series capacitive compensation, which is novel technique has discovered in order to avoid the complexity of FACTS devices and their control. This simple device is used to get rid of all complexity in control of various FACTS devices can be avoided and can be effectively implement it in practical systems.

Complete Specification

Description: System description

Transmission systems for the case study have been developed with 220KV EHV Transmission system and 765KV UHV Transmission systems in MATLAB Simulink environment and scale down laboratory test model have been built with 230V System. A Transmission system one line diagram with series capacitive compensator as shown in the Fig.1 below, which is used to carryout simulation and experimental study. The Simulink block diagrams have been developed and simulated with 220KV EHV Transmission system and 765KV UHV Transmission systems without and with series capacitive compensator which is developed with initial design based iterative algorithm. The Ferranti effect for EHV and UHV transmission systems has been illustrated with a phasor diagram illustrated by the following Fig. ... The V_s is the sending end voltage without compensator and V_{s1} is with compensator which is exactly equal to the receiving end voltage V_r , this can be accomplished with the aid of compensated voltage V_c by the application of Series capacitive Compensator. Fig.1 is illustrating the single line diagram of EHV and UHV Power Transmission Systems which is equipped with a generator connected to step up power transformer used to increase the transmission voltage to a higher level of EHV with 230KV and UHV is of 765KV systems. This combination is connected to compensator along with switched shunt breaker and a transmission line feeding a load. Fig.2 depicts the phasor diagram of the system for mitigation of Ferranti effect with novel technique of series capacitive compensation based on initial design based iterative algorithm as illustrated in the below Fig.3. The initial tentative design is obtained as 50% compensation and it is updated with iterative algorithm with small step size increment or decrement based on checking conditions as illustrated in the flowchart in Fig 1

Case studv and simulation results

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