

Can capacitive reactive power be used to regulate voltage?

This article presents an efficient voltage regulation method using capacitive reactive power. Simultaneous operation of photovoltaic power systems with the local grids induces voltage instabilities in the distribution lines. These voltage fluctuations cross the allowable limits on several occasions and cause economic losses.

How is capacitive reactive power produced?

The capacitive reactive power is generated through the capacitance producing devices serially or shunt connected to a load,. A significant amount of studies was devoted to the methods to produce reactive power,such as DSTATCOMs ,,,STATCOM ,,,and real electrical capacitors .

What is SVC reactive power?

Maximum SVC's reactive power is generated by capacitors of harmonic filters and is equal to maximum reactive power of the appliance. Reactive power control is conducted by thyristor valve which regulates current of TCR reactors and compensates excess reactive power of the capacitors in harmonic filters.

Why do I need a reactive power compensator?

To provide reactive VAr control in order to support the power supply system voltage and to filter the harmonic currents in accordance with Electricity Authority recommendations, which prescribe the permissible voltage fluctuations and harmonic distortions, reactive power (VAr) compensators are required.

What is the maximum reactive power of a shunt capacitor bank?

This discharge may cause a rupture of the failed unit with possible damage to the rest of the bank. To prevent it,the maximum reactive power of one series section should not be higher than 4,650 kvarat a rated voltage and 60 Hz frequency. Refer to IEEE Std. C37.99-1990 "IEEE Guide for Protection of Shunt Capacitor Banks 1.

What are the disadvantages of a series capacitor?

This is a serious drawback, as the supply of reactive power by a capacitor drops when it is most needed; series capacitors are used to compensate for the inductive reactance of the loaded overhead power lines.

This section presents the simulation results of reactive power control and inverter AC voltage control of the LCC HVDC system with controllable capacitors. The nominal operating point for ...

Abstract: Reactive power control is a very essential and necessary strategy to maintain the safe and reliable operation of power systems. There are different methods available for optimization of reactive power. In spite of the advantages of power electronic devices, placement of the capacitors still remains technically viable and an economically affordable option for reactive ...

In, an active distribution network (MG) voltage control optimization model with non-linear constraints is

proposed to coordinate the control of OLTC, capacitor, DG output, and ...

Reactive power switchable compensating equipment is discussed first, then voltage and reactive power continuous control devices are described, with a distinction made between rotating electrical machines and static power electronic converters (i.e., static VAR compensator (SVC), static compensator (STATCOM) and unified power flow controller (UPFC)).

Reactive power control of HVDC system with controllable capacitors -- 4251/4252 4. Reactive Power Control Fig. 12 shows the system responses following changes of reactive power reference. In this simulation, the reactive power reference is initially set to zero and changes to -150 MVar at 3.1 s, then increases to 150 MVar at 4.6 s and finally ...

The elegant approach to the reactive power control problem in a radial distribution system using fuzzy logic is presented. Voltage and power loss reduction of n

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2021. Voltage control and reactive power play an important role in the operation of the distribution network. Accordingly, conventional methods such as the installation of a capacitor in an optimum location with a proper capacity and optimal transformer tap setting which has an impressive effect on voltage control and reactive power are used.

The control of a affects the power flow that supplies the losses in the STATCOM; whereas the control of m affects the reactive power output. In converters with GTO ...

reactive power control method [26], decoupled active and reactive power predictive control [27], ... One of the effective methods for the production of reactive power is to connect capacitors at ...

Reactive power control is conducted by thyristor valve which regulates current of TCR reactors and compensates excess reactive power of the capacitors in harmonic filters.

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