

Utility SVC - Tailored technical solutions...

Systems parameters determining SVC design

Each network has its own power supply quality requirements, so each SVC must be tailor-made. SVC design depends on the fault level and load parameters. In case of high fault levels, the main parameter of the SVC design might be reactive power compensation, while flicker and harmonic reduction are major concerns for low fault levels.

Reducing harmonics

Non-linear loads generate harmonic currents. The harmonic currents load the network and lead to voltage distortions. Distorted voltage may cause end-user malfunctions: for example, in sensitive computerised devices and other process control equipment.

The filter circuit of a utility SVC system is designed to absorb harmonics generated by charge as well as by Thyristor Controlled Reactors (TCR). The total harmonic distortion (THD) and individual harmonic voltages are limited to below specified levels, thus offering a more fluid power flow.

Power transfer capacity increases

Reactive power transmission can lead

to significant voltage drops and current increases in the network, which limits the transmission capacity of active power.

Utilities can maximise their transmission line capacities by compensating reactive power. The Static VAr Compensator maintains the demand for reactive power within the limits set by utilities.

Voltage stabilisation, unbalanced loads

Loaded non-transposed lines can create voltage unbalance causing reduced efficiency, overheating, noise, torque pulses and speed pulses to motor operations. The utility SVC operates in single-phase control mode, thus balancing the voltage.

Flicker reduction

Rapidly varying reactive power causes voltage fluctuations at the common coupling point. The human eye perceives this frequency of voltage fluctuations as flickering lights. The addition of an SVC into the network reduces the flicker.

Fixed or relocatable

SVC locations can be fixed or relocatable. While outdoor equipment is usually built as fixed structures, indoor equipment is often situated within an easily relocatable container. It is also possible to use a modular SVC design, making transportation, installation and commissioning fast and easy.



Above: Tri-State Generation & Transmission in Clapham, USA

Left: Campos, Furnas Centrais Elétricas SA, Brazil