



Transmission bank solutions

AC and DC solutions to ensure reliable and efficient power delivery

As technology continues to evolve, so do system demands - increasing expectations for stability, efficiency and control. As North America's leading manufacturer of power capacitors, Eaton works directly with customers to develop transmission bank solutions for both AC and DC systems, ensuring reliable and efficient power delivery.

Eaton's Cooper Power series transmission banks are designed to specific network needs, and can be deployed to address several challenges in one package.

AC solutions

Eaton's transmission capacitor banks have been utilized in various Flexible Alternating Current Transmission Systems (FACTS) – both in series and shunt compensation.

- Series compensation modifies line impedance to increase active power by injecting voltage in series with the line. Examples include Static Synchronous Series Compensator (SSSC), Thyristor Controlled and Switched Series Capacitor (TCSC & TSSC).
- Shunt compensation injects reactive current at the point of connection to maintain voltage. This method improves power factor by utilizing capacitors to lead the voltage source, offsetting inductive loads. Examples include Static Synchronous Compensator (STATCOM) and Static VAR Compensator (SVC).



Powering Business Worldwide

FACTS designs are flexible and can address a large variety of transmission system issues including:

- Voltage issues: Stability, dynamic and reactive support, low voltage at high load, high voltage at low load, issues following outages
- Load sharing: Parallel, post fault, direction reversal
- Thermal: Line overload, tripping of parallel line
- Dampening

Utility benefits from implementation of FACTS system can be widespread, and include:

- Improved system security
- Enhanced system reliability, power stability, power flow control
- Optimization of transmission lines, elimination of new transmission projects
- Increased cost effectiveness
- Environmentally friendly, reduced green-house gases

DC solutions

High-Voltage Direct Current (HVDC) system transmission banks utilize 100 and 1,100+ kV and are typically viewed as an economic means of power transmission due to reduction in electrical losses. HVDC systems can be stabilized from rapid changes in power, as they can be controlled independently of phase angle.

Proven experience

Eaton's Cooper Power series capacitor product line experts have over 20 years' experience in designing transmission banks for use in FACTS and HVDC systems. These banks can utilize up to several hundred capacitor units per installation to support 500kV+ ratings, and provide more than 500 Mvar. To date, these FACTS and HVDC transmission bank designs have been implemented extensively worldwide. Eaton welcomes the opportunity to develop custom transmission bank solutions for any HVDC or FACTS system needs. Contact your Eaton representative for additional information.



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