

SVS improves power supply in major industrial area

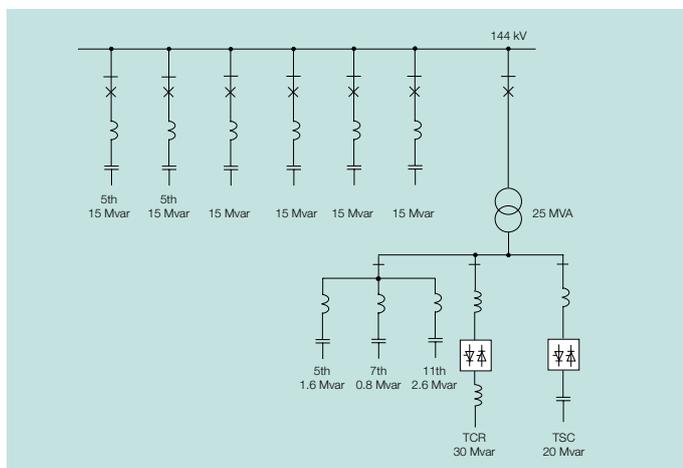


An ABB SVS (Static Var System) - the first of its kind in Western Canada - was commissioned in 1985 in the Bonnyville 144 kV substation of Alberta Power Ltd. The compensator was installed to improve the power supply to large oil industries in the Bonnyville area of Alberta.

The decision to install this equipment came as a consequence of the load growth in the area surpassing the rate of expansion of the transmission network, making it necessary to quickly boost the power carrying capability of existing lines. The SVS was the answer. It was put into service only 14 months after signing the order.

The static var system consists of a thyristor-controlled static shunt compensator for dynamic var control (SVC) combined with mechanically switched capacitor banks (MSC) to extend the var support in the capacitive range. The capacitor bank switching is controlled by the regulator of the SVC thus making the SVS control fully automatic and keeping the SVC part a dynamic reserve. By means of a power logic unit integrated in the control system, sequential switching of the mechanically switched capacitor banks is achieved to optimize the use of these.

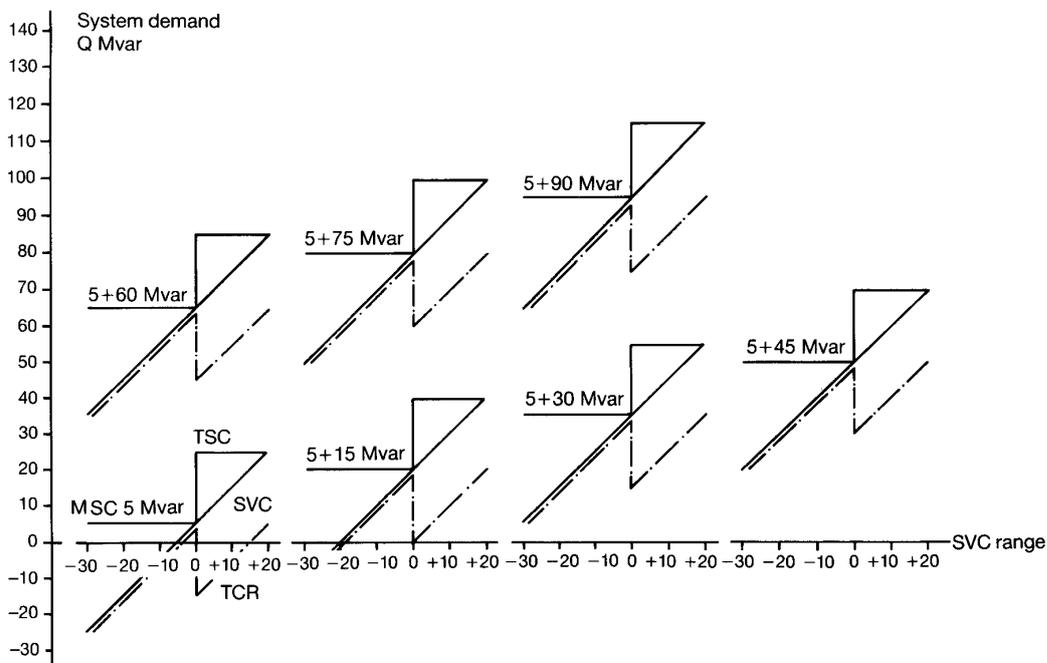
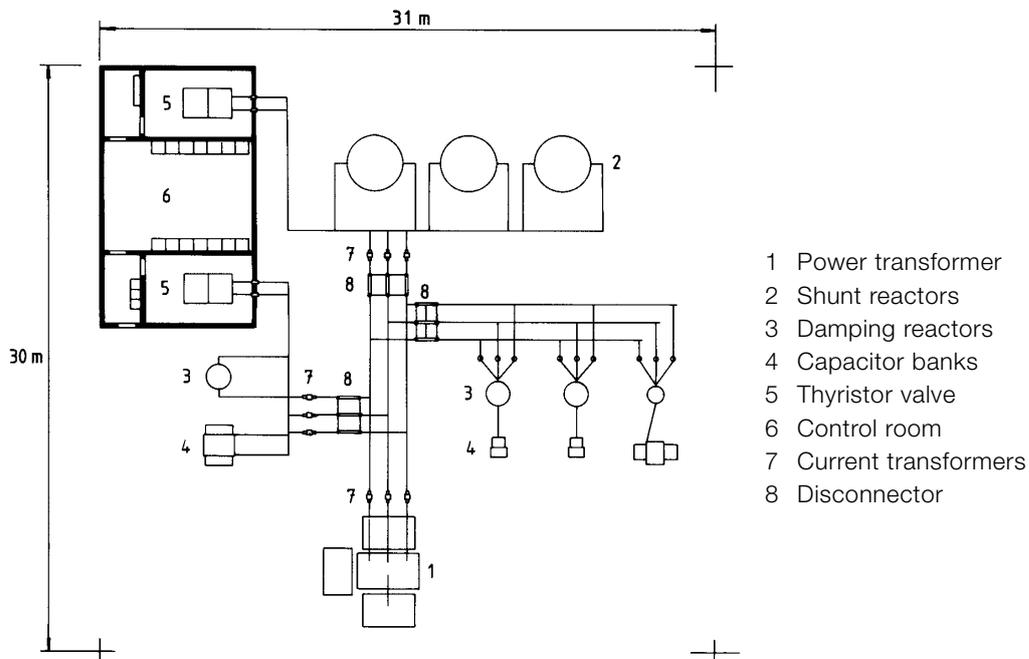
The implementation of the SVS has significantly improved the system conditions of the network in the area.



Technical data

Controlled voltage	144 kV
SVC rating	25 Mvar inductive to 25 Mvar capacitive
Mechanically switched capacitors, total rating	90 Mvar
SVS rating	25 Mvar inductive to 115 Mvar capacitive
Control system	Three-phase voltage control by means of a voltage regulator
Thyristor valves	Air-cooled, three-phase valves with magnetic triggering and redundant fans

Layout



System demand versus SVC output at various numbers of 144 kV capacitor banks switched in

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