Phase Shifting Transformers (PST)

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TRANSFORMERS FOR TRANSMISSION

Power Line

Phase Shifting Transformers (PST)

OVERVIEW

Modern power grids, following the deregulation of the energy sector, have an articulated structure covering large areas, often in different countries. Energy is no longer produced and consumed in the same country, in the same area, but is traded on a large scale between different countries and areas. It is therefore necessary to manage the energy flow according to the supply contracts and not to the natural path determined by the physical parameters of the interconnected networks. A Phase-Shifting Transformer (PST) is a special unit, specifically used for managing the power flow through complex interconnection lines.

This goal is achieved by controlling the phase displacement between the input and the output voltages of the transmission lines interconnected through the PST. Both the magnitude and the direction of the power flow can be controlled by varying the phase shift. Similar considerations can be made about the reactive power flow, but based on the in-phase regulation of the voltages.

In order to satisfy these requirements, several design solutions of PST are available; the most common types are:

- Two-core design in symmetric and asymmetric configuration
- Single-core design in symmetric and asymmetric configuration

Both of them allow a possible addition of an in-phase voltage regulation, to compensate the net voltage fluctuation or to combine in-phase and quadrature regulation.

PRODUCT SCOPE

- System voltage up to 420 kV with in-phase regulation if required
- Through-put rating up to 1800 MVA

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