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**The method of choosing the placement and parameters of phase-shifting transformers.**

Different methods of optimal choosing the placement and parameters of phase-shifting transformers are considered. Angle sensory matrix PSDF construction and analysis are performed for 14-node and 57-node IEEE schemes. Dependencies of node voltage and active power losses on PST angle with use of bilinear theorem are obtained, active power losses-optimal placements of PST are proposed, their optimal angles are determined.

*Key words: Unified Energy System, phase-shifting transformer, PSDF matrix, bilinear theorem, optimal placement, optimal PST angle.*

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