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ACCOUNT FACTORS TRANSFORMATION IN THE ELEMENTS OF THE ADMITTANCE MATRIX IN MODELING MODES OF ELECTRIC POWER SUPPLY NETWORKS

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During modeling of the modes of electric networks and their optimization use, both a method of planimetric currents, and a method of nodal tension is possible. Now most of all use different modifications of a method of nodal tension in which each knot of an electric network is displayed by the complex equation.

The mathematical equations (1), (2) and (3) display model of calculation of the mode of an electric network taking into account lack of transformer sites.

In the presence in the scheme of an electric network of transformer sites with the valid coefficients of transformation K, and especially with complex coefficients of transformation $K' + jK''$ are considered above the mathematical equations can have more difficult structure.

Research objective – the offer of simplification of the mathematical equations taking into account transformation elements when modeling the modes of electric networks and their optimization to the equations (1), (2) and (3) inclusions of coefficients of transformers in elements to a conductivity matrix at its formation that includes need of recalculations on each step of iterative process as conductivity, and transformation coefficients upon transition from one knot of a transformer site to another.

Materials and technique of research. The technique of inclusion of coefficients of transformation in elements of a conductivity matrix for simplification of the mathematical equations (which transformation elements have) to a look (1), (2) and (3) consists in transformation of transformer sites of an electric network to the without the transformer.

Conclusions

For simplification of the mathematical equations when modeling the modes of electric networks and their optimization inclusion of coefficients of transformation of transformer sites in conductivity matrix elements is offered. The technique is introduced and brought its efficiency when developing on chair of power supply named after professor V. Sinkov NULES of Ukraine a complex of the software of modeling of the set modes and optimum modes of electric networks of power supply systems of the confidant to real conditions of their operation.

The mathematical solution of inclusion of coefficients of transformation of transformers and autotransformers in elements of a matrix of conductivity in the course of its formation when modeling modes of electric networks of power supply systems that their optimization is proposed.

Longitudinal conductivity, matrix of conductivity, own and mutual elements of a matrix, valid and complex coefficient of transformation.