

Rational selection of initial approximations during the calculation of marginal mode equations for electric power systems.

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For efficiency improvement of marginal steady-state modes calculation of electric power systems (EPS) the methodology is proposed for determining rational initial approximation of eigenvector components appeared in the marginal modes equations using the procedure of spectral and singular decomposition in relation to the Jacobi matrix of steady-state equations.

Methodology for step limitation of Newton's method during the solution of mode operating into the domain of existence issues for cases where the calculation of initial approximations is difficult has been developed. The methodology is based on the procedure of step limitation according to the Eneev-Matveev circuit.

Key words: electric power system, marginal modes equations, Jacobi matrix, initial approximations.