



ANALYSIS OF METHODS OF POWER FLOWS CALCULATION UNDER OPTIMIZATION OF POWER SYSTEM DEVELOPMENT

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ABSTRACT

In this paper is given the analysis of methods of power flows calculation in optimization of power system development tasks. In this paper we analyze: iteration method with base node, iteration method without base node, Gauss elimination method and inverse matrix method of power flow calculation of transmission network. The main parts of this task are improving existing method for criterion calculations in development tasks and analyze methods advantages and disadvantages.

The results of this research can also be useful for developing sustainable development management technologies for large technical systems.

The paper describes the course of the research from description of the problem to algorithm development and value calculation. Result of the research is focused on active power flow calculation methods with the aim compare calculation speeds. As well as the results of testing conducted using MATPOWER (MATLAB power system simulation package) bus test systems. This research reflects one of the many problems, which need to be solved in imminent future and then utilized for power transmission network modeling and development tasks, for example, increasing integration in the Baltic electricity and Europe-wide interconnection establishment.

Keywords: power flow, mathematical modelling, dynamic optimization,