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SIMULATION MODEL OF DAY AHEAD MARKET WITH IMPLICIT CONSIDERATION OF POWER SYSTEMS NETWORK CONSTRAINTS

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Abstract

The approaches to solving the problem of taking into account network constraints in the "day-ahead" markets are described in the context of the liberalization of interstate electricity trade and further integration of the Ukrainian electricity market with the corresponding European markets. The features of pricing modeling in this market segment are shown. The requirements for the main methods of market price forming are determined based on the results of solving the problem of finding the optimal hourly volumes of electrical energy exchange between price zones. The architecture and mathematical apparatus of simulation tools for the main functions of the "day ahead" market are proposed. The simulation results are present confirming the performance of the proposed solutions. The results of the assessment of the influence of the

ancillary services market on the electricity price in the day-ahead market segment are shown in terms of the reservation of production capacities due to requirements of the regulation of the IPS Ukraine electrical regime. According to the analysis of the prospects for interstate electricity trade in Ukraine, Hungary and Romania, the export potential of Ukrainian power plants was confirmed. The problematic aspects of IPS of Ukraine coupling with European energy systems in the "day-ahead" market segments were noted. References 8, figures 5.

Key words: day-ahead market, network constraints, simulation modeling, electricity market, mathematical modeling.

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