

DOI: <https://doi.org/10.15407/techned2018.01.087>

MULTIFACTOR MODELING AND ANALYSIS OF ELECTRICAL LOAD OF THE POWER SYSTEM USING THE DATA OF LONG-TERM PREHISTORY

Journal	Tekhnichna elektrodynamika
Publisher	Institute of Electrodynamics National Academy of Science of Ukraine
ISSN	1607-7970 (print), 2218-1903 (online)
Issue	No 1, 2018 (January/February)
Pages	87 – 93

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Abstract

The issue of using a long-term prehistory to improve the accuracy of short-term forecasting the total electric load of the power system is considered. Information on hourly loads of regional energy systems and the main factors that affect them is stored in the developed database. The special control program can display information in graphically. Using the program for processing

this information, a mathematical model of the electric load is constructed and changes in its characteristics over time are investigated under the influence of external factors. In order to test the effectiveness of the approach that involves the use of individual models trained in selected seasons on a sample of long-term pre-history, comparative prediction of hourly values of the total electric load for the day ahead was performed. Time intervals in the annual period that corresponds to the different characters of the effect of air temperature on the electric load are allocated. The proposed method, which consists in constructing independent mathematical models of electric load on the allocated time intervals with the use of long-term data. It improves the accuracy of modeling the influence of exogenous factors on the electric load of power system. The approach to modeling and forecasting of electric load of irregular days using the data of long-term prehistory is given. References 8, figures 3, tables 2.

Key words: power system, electrical load, mathematical modeling, short-term forecasting, long-term prehistory, exogenous factors.

Received: 19.07.2017

Accepted: 28.11.2017

Published: 29.01.2018

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