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MODELING AND SHORT-TERM FORECASTING OF TECHNOLOGY COMPONENT OF ELECTRICAL LOAD OF THE REGIONAL ELECTRIC POWER SYSTEM

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Abstract

The proposed method for a total electrical load of the regional electric power system forecasting is described. To model a technology load component, artificial intelligence techniques and autoregressive Box-Jenkins models are used. The advantages and disadvantages of different forecast models are analyze. To solve the mentioned task, an optimal type, architecture and vector of model input parameters are determined. Approbation was conducted on actual data taken from the regional electric power system with advantage of industrial power consumption. References 4, table 1.

Key words: electric power system, electrical load, mathematical model, short-term forecasting, energy-intensive enterprises, artificial neural network, Box-Jenkins model

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References

1. Bodyanskiy Ye., Popov S., Rybalchenko T. Feedforward neural network with a specialized architecture for estimation of the temperature influence on the electric load. Proc. 4th International IEEE Conference Intelligent Systems. Varna, 2008. Vol. I. P. 714–718. DOI: https://doi.org/10.1109/IS.2008.4670444
2. Box G., Jenkins G. Time Series Analysis: Forecasting and Control. Moskva: Mir, 1974.
3. Chernenko P., Martyniuk O., Miroshnyk V., Zaslavsky A. Two-stage verification of daily schedules electrical loads of power system with the significant part of industrial power consumption. *Enerhetyka ta Elektryfikatsiia*. 2015. No 7. P. 10– 23. (Ukr)
4. Hippert H.S., Pedreira C.E., Souza R.C. Neural networks for short-term load forecasting: a review and evaluation. *IEEE Trans. Power Systems*. 2001. Vol. 16. No 1. P. 44-55. DOI: https://doi.org/10.1109/59.910780

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