

Statistical Methods Used in Quality Management of the Electrical Energy

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Abstract

As part of this paper, the main purpose is to present the elaboration methodology of some forecasts in the energy consumptions area, using few mathematical models. The forecast for energy consumptions is realised for a short period of time with a mathematical model, probabilist type, because the analysis is taken place from past to future and the independent variable is the time, and we consider that the prognosis is direct.

References:

- [1] Vuc Gh : Managementul energiei electrice, Seria Energie și Mediu, Ed. AGIR Buc. 2001.
- [2] Panzar Laura, Cipu Corina: "Stochastic modelling and prognosis of an underlying asset pricing", Jurnal of Econ. Forecasting , Nr. 3 Inst. De Prognostică București.
- [3] Blockwell, P., Davis, R.: „Time series: Theory and Methods”, Springer-Verlag, 1987
- [4] Box, G., Jenkins, G. : “Time series analysis, forecasting and control”, Holden Day, 1970.
- [5] Hamilton, J. “Time series analysis”, Princeton University Press, 1994.
- [6] Chkravarti I.M. u.a. “Handbook of Methods of Applied Statistics” John Wiley, New York , 1967.
- [7] A. Khotanzad, R. Afkhami-Rohani, T.L. Lu, M.H. Davis, A. Abaye, D. Maratukulam ,ANNSTLF, “A Neural Network Based Electric Load Forecasting System”, IEEE Trans. on Neural Networks, Vol. 8, No. 4, July 1997.
- [8] A. Khotanzad, R. Afkhami-Rohani, D. Maratukulam ,ANNSTLF “Artificial Neural Network Based Short Term Load Forecaster”, Generation Three; IEEE Trans. on Power Systems, Vol. 13, No. 4, Nov. 1998.
- [9] Tertisco M., Stoica P., Popescu Th., “Modelarea și predicția seriilor de timp”. Editura Academiei, București, 1985.
- [10] Vermuri S., Huang W.L., Nelson D. J., ‘On /line algorithms for forecasting hourly loads of an electric utility’, IEEE Power Apparatus and Systems, PAS- 100, vol 8, 1981.
- [11] H. S. Hippert, C. E. Pedreira and R. C. Souza, “Neural Networks for Short-term Load Forecasting: A Review and Evaluation”, IEEE Transactions on Power Systems, Vol. 16, No. 1, pp. 44–55, Feb. 2001.
- [12] E. P. Feigin, D. Greig and L. Hyams, “Experience with FNN Models for Medium Term Power Demand Predictions”, IEEE Transactions on Power Systems, Vol. 14, No. 2, pp. 538–546, May 1999.
- [13] M. Kanda, Z. Hazashi, S. Iwamoto and S. Furuza, “Long term maximum load forecasting using modified neural network approach”, Proceedings of Intelligent System Application to Power System ISAP'94, Montpellier, France, September 5-9, 1994.

- [14] P. K. Dash, A. C. Liew and S. Rahman, "A comparative study of load forecasting models using fuzzy neural network", Proceedings of Intelligent System Application to Power System ISAP'94, Montpellier, France, September 5-9, 1994.
- [15] S. E. Papadakis, J. B. Theocharis, S. J. Kiartzis and A. G. Bakirtzis, "A novel approach to short-term load forecasting using fuzzy neural networks", IEEE Transactions on Power Systems, Vol. 13, No. 2, May 1998.
- [16] K. L. Ho, Y. Y. Hsu, C. F. Chen, T. E. Lee, C. C. Liang, T. S. Lai and K. K. Chen, "Short term load forecasting of Taiwan power system using a knowledge based expert system", IEEE Transactions on Power Systems, Vol. 5, No. 4, December 1990.
- [17] Rahman and O. Hazin, "A generalized knowledge/ based short/term load forecasted technique", IEEE Transactions on Power Systems, Vol. 8, No. 2, May 1993.
- [18] H. Mori and H. Kobayashi, "Optima fuzzy inference for short term load forecasting", IEEE Transactions on Power Systems, Vol. 11, No. 1, February 1996.
- [19] Borlea, A. Buta Member, IEEE, and B. Luștrea, "Some Aspects Concerning Mid Term Monthly Load Forecasting Using ANN " EUROCON 2005 Serbia & Montenegro, Belgrade, November 22-24, 2005.
- [20] Comănescu, M. Aspecte energetice europene. Editura Economică, București, 2000;
- [21] Paterson, W. "Electricitatea o industrie în schimbare. Politici, strategii, dezvoltare". Editura Tehnică-Editura AGIR, București, 2000.
- [22] Albert, H., Lungu, I., Lavrov and G. Golovanov, N. , "Considerații privind calitatea energiei electrice livrate". Editura RENEL – GSCI, București, 1998.
- [23] Leca, A. "Principii de management energetic". Editura Tehnică, București, 1997.