UTILIZATION OF ARTIFICIAL NEURAL NETWORKS FOR OPTIMAL ECONOMIC OPERATION OF THERMAL POWER SYSTEMS

استخدام الشبكات العصبية الاصطناعية في التشغيل الاقتصادي الأمثل
لأنظمة القوي الحرارية

**M . MOENES SALAMA [1],   EBTISAM M. SAIED [2],
SALAH E. SOLIMAN [3]   HANAA M. M. GAD – ALLA [4]**

1,2   Prof. Of Elec. Power System, Faculty of Eng. (Shoubra),Zagazig university
3   Prof. Of Material Eng. ,Hot Laboratories Center, Atomic Energy Authority
4   Electrical Eng., Hot Laboratories Center, Atomic Energy Authority

ABSTRACT

Economic operation of a thermal power system means minimization of the generation cost of the thermal units over a specified period of time. The operation constraints may be taken into consideration. Lagrangian method and the suggested-modified Lagrangian method are presented to solve the optimal economic load dispatch problem. The mathematical models are built and applied to a power system which consists of five thermal units .The artificial neural networks with the Hopfield modeling are also designed and applied to obtain the economic load dispatch. In this study, it has been suggested that ,the power limits constraints of the generation units could be involved in the objective function of the mathematical models .The acceptable agreement between the obtained results verifies the feasibility of the suggested methods.

KEYWORDS: Hopfield modeling ,Optimal economic dispatch, Artificial neural network, Back-propagation algorithm, Economic operation.