A Genetic-Based Algorithm For Fuzzy Unit Commitment Model

Mantawy, A.H.;Dept. of Electr. Eng., King Fahd Univ. of Pet.Miner., Dhahran;

http://www.kfupm.edu.sa

Summary

This paper presents a fuzzy model for the unit commitment problem (UCP). The model takes the uncertainties in the forecasted load demand and the spinning reserve constraints in a fuzzy frame. The genetic algorithm (GA) approach is then used to solve the proposed fuzzy UCP model. In the implementation for the GA, coding of the UCP solutions is based on mixing binary and decimal representations. A fitness function is constructed from the total operating cost of the generating units plus a penalty term determined due to the fuzzy load and spinning reserve membership functions. Numerical results showed an improvement in the solutions costs compared to the results reported in the literature and the GA with crisp UCP model

For pre-prints please write to:abstracts@kfupm.edu.sa