A parallel procedure of optimization and forecasting techniques applied in energy demand

Aurora Ferrja[1] Eralda Dhamo[2] Besiana Çobani[3] Arbesa Kamberi[4]

The energetic field is one of the most fundamental sector in the development of the economy of a country. To optimize the energy production it is important to obtain an accurate forecast for the demand. The combination of the optimization techniques with time series forecast techniques is studied in other works as well. In this paper we present a parallel algorithm to obtain one day ahead forecasting which consist of combining an evolutionary method and forecasting techniques. The optimization method used is PSO (Particle Swarm Optimization). This method controls a considerable number of restrictions, specifically in our work: the total volume, the maximum and minimum level in HPP, etc, so, it is necessary a parallelization of the work. On the other hand, the forecasting procedure utilize some exogenous variables in a dynamic way to obtain the most accurate forecast which serves as an input to PSO. To achieve the required result in a faster execution time a parallel implementation procedure of these two techniques is used. Daily data of energy production are analyzed and forecast.

References:

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[1]Tirana University, Applied Mathematics
aurora.simoni@fshn.edu.al

[2]Tirana University, Department of Applied Mathematics
eralda.dhamo@fshn.edu.al

[3]Tirana University, Department of Mathematics
besiana.hamzallari@fshn.edu.al

[4]4Albanian Power Corporation, Operation Department, Analyses Programming Sector Tirana, Albania
kamberia@kesh.al