Load Forecasting Using Neural Network Integrated with Economic Dispatch Problem

Authors : Mariyam Arif, Ye Liu, Israr Ul Haq, Ahsan Ashfaq

Abstract : High cost of fossil fuels and intensifying installations of alternate energy generation sources are intimidating main challenges in power systems. Making accurate load forecasting an important and challenging task for optimal energy planning and management at both distribution and generation side. There are many techniques to forecast load but each technique comes with its own limitation and requires data to accurately predict the forecast load. Artificial Neural Network (ANN) is one such technique to efficiently forecast the load. Comparison between two different ranges of input datasets has been applied to dynamic ANN technique using MATLAB Neural Network Toolbox. It has been observed that selection of input data on training of a network has significant effects on forecasted results. Day-wise input data forecasted the load accurately as compared to year-wise input data. The forecasted load is then distributed among the six generators by using the linear programming to get the optimal point of generation. The algorithm is then verified by comparing the results of each generator with their respective generation limits.