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RBF Neural Network and ANFIS-Based Short-Term Load Forecasting Approach in Real-Time Price Environment

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With the appearance of electricity markets, the variation of the price of electricity will influence usage custom of electric energy. This will complicate short-term load forecasting and challenge the existing forecasting methods that are applied to a fixed-price environment. In regard to the influence of real-time electricity prices on short-term load, a model to forecast short-term load is established by combining the radial basis function (RBF) neural network with the adaptive neural fuzzy inference system (ANFIS). The model first makes use of the nonlinear approaching capacity of the RBF network to forecast the load on the prediction day with no account of the factor of electricity price, and then, based on the recent changes of the real-time price, it uses the ANFIS system to adjust the results of load forecasting obtained by RBF network. This system integration will improve forecasting accuracy and overcome the defects of the RBF network. As shown in this paper by the results of an example of factual forecasting, the model presented can work effectively.

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