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Short Term Distribution Load Forecasting Using Wavelet Transform and Artificial Neural Networks

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Abstract : The major tool for distribution planning is load forecasting, which is the anticipation of the load in advance. Artificial neural networks have found wide applications in load forecasting to obtain an efficient strategy for planning and management. In this paper, the application of neural networks to study the design of short term load forecasting (STLF) Systems was explored. Our work presents a pragmatic methodology for short term load forecasting (STLF) using proposed two-stage model of wavelet transform (WT) and artificial neural network (ANN). It is a two-stage prediction system which involves wavelet decomposition of input data at the first stage and the decomposed data with another input is trained using a separate neural network to forecast the load. The forecasted load is obtained by reconstruction of the decomposed data. The hybrid model has been trained and validated using load data from Telangana State Electricity Board.

Keywords : electrical distribution systems, wavelet transform (WT), short term load forecasting (STLF), artificial neural network (ANN)
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