PREFACE

Electricity has become a necessity in our lives, and as the population grows, so does the demand for it. Electricity is necessary for industries, households and for economic and overall development of a region. Since the demand of electricity is rising it is necessary to manage the supply and demand in order to avoid energy shortage or wastage. A thorough study of electric grid is necessary to understand and manage the electricity demand as various factors influence the electricity demand. This project focuses on multivariate analysis of electricity consumption of Mumbai using factors such as temperature and rainfall. Various time series models are used for analysis and forecasting. The objective of this project is to analyze the influence of factors such as temperature and rainfall on electricity consumption. The study also emphasizes predicting future values that will aid in understanding future demand and needs so that critical actions may be implemented. The data is collected from government websites such as Maharashtra State Load Despatch Center and India Meteorological Department. Models such as Vector Auto Regression (VAR) model, Fbprophet and Long Short Term Memory network (LSTM) are used for forecasting future values. Root mean square error (RMSE), Mean square error (MSE) and Mean absolute percent error (MAPE) were used to assess the model performance. The study's findings indicated that the FbProphet model performed well followed by LSTM and VAR. MSE value, RMSE value and MAPE value were lowest in the FBprophet model.