Following are some of the machine learning Techniques for Time Series Forecasting that can be used:

1. Support Vector Regression (SVR):

The aim of Support Vector Regression is to find the best line (hyperplane) to the given data. They are easy to implement, robust to outliers and has excellent generalization capability. The time series data is full of non-linearity and irregularities and SVMs are well known to solve nonlinear regression estimation problems. Our dataset of Medium Term Load Forecasting is non-linear and small in size, and SVM’s are good fit for non-linear, non-Guassian, small datasets regression problems. Therefore, SVMs can be used for problem of MTLF.

2. LSTM:

Long short term memory models are able to store information for a long period of time. They have capability to forecast future values using past sequential data. In time series, there can be lags of unknown duration between important events. Hence, we can use LSTMs to store information about events over the period of time and can forecast future values based on that. Due to presence of seasonality and trend in our dataset, LSTMs can predict better future values. LSTM is able to exploit the long term dependencies in the electric load time series for more accurate forecasting and hence can be used as a good forecasting model for Medium Term Load Forecasting.

3. Decision Trees:

Decision tree algorithms and can be used for classification and regression. Each tree in decision trees predicts a class and the class with maximum votes is the selected one. In regression, the selected class is the average of predictions for all trees. Some studies have shown that bagged regression trees are good for predicting load forecasting . According to the research conducted at University of Cartagena, among the four ensemble methods (random forest, bagging, conditional forest, and boosting ) bagging and random forest were showing best results for load forecasting. Hence, we can apply this model for Medium Term Load Forecasting and can predict results.

4. Multi-Layer Perceptron (MLP)

Multi-Layer Perceptron is a feed forward network that can be used for both classification and regression. They are designed to approximate any continuous functions and can solve non-linear problems easily. A typical MLP consists of an input, hidden and output layers, including  
neurons, weights and a transfer functions. To train MLP model on a time series data, data needs to be prepared well before training.

5. (KNN) K-nearest neighbors:

KNN is used both for classification and regression purposes. KNN regression can be used for time series forecasting. It uses the technique of selecting class from the K most similar data points with the given test point. One big usage of KNN is that it is fast in computation while working with small datasets.