Power load forecasting

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Power load forecasting can be divided into load forecasting and electrical consumption predicting according to forecasting matter. Base on different predicting time, it can be divided into long-term load forecasting, mid-term forecasting, short-term forecasting and ultrashort-term forecasting. Mid-term and long-term forecasting mainly used in power factory macro control, and their forecasting time ranges are respectively from one month to twelve months and from one month to ten months respectively. The short-term forecasting can be used in generators macroeconomic control, power exchange plan and so on. And the prediction is from one day to seven days in the future, or a little longer time. Whereas the ultrashort-term forecasting can predict the situation in a day or in an hour, and it's mainly used in Prevention and control emergency treatment and frequency control. With the deepen reform of electricity, the formation of power market and the independent and self-financing of electricity enterprises, power load forecasting becomes more and more important. How to improve the accuracy of power load forecasting is a valuable research. Generally speaking, long-term accuracy of the forecast will be lower, while short-term will be higher.

Problems:

(1) Combine the economy development (such as GDP) and the feature of the city; predict the total electrical consumption and the peak load of the city in 2006.

(2) Forecast the mensal consumption and mensal peak load in 2006, and amend the prediction value when giving the real consumption of the first three months. (Hint: Affected by the Spring Festival, the conditions of Jan and Feb are special.)

(3) Forecast the daily consumption of July 10th to 16th in 2006 (unit: 10000kw/h) and the daily peak load (unit: 10000kw/h). (Hint: Generally speaking, the electrical consumption of Sunday is the lowest in a week, and the consumptions of Thursday and Friday are higher than others. We also find the consumption will increase as the temperature increase in the summer.)

(4) Forecast load of every 15 minutes of July 10th (unit: 1000kw). We find that there are two peaks, respectively, in the morning and at night, and the consumption is low at noon, while lowest late at night. The load jumping-off point of on Monday is lower, i.e. the load at 0:00-8:00 is clearly lower than other days.

(5) Real time forecasting, i.e. according to the former load, amend the next 15 minutes' load.