Dear OTA –

I need a solution or method to estimate the hourly electrical load for the State of Georgia during 1994, using Regression Modeling Techniques.

Given will be Excel tables that provide Georgia’s actual hourly weather and average electrical load for the years 1992 and 1993 (9293w\_ld) and Georgia’s actual hourly weather data for the year 1994 (94wtr) to estimate the average electrical load from using a regression model.

How the data is represented in the columns and cells in these tables can (and probably should) be revised (i.e., added, deleted, modified, rearranged, etc.) to make it easier to produce a viable model that outputs estimates for the year 1994 that closely shadow or mirror the trend or graph of the **combined** 1992 and 1993 actual average hourly electrical loads.

**After choosing and providing this viable Regression Model to estimate the 1994 electrical loads, please also provide:**

1. **The rationale or reasoning behind the revisions made to how the original data was represented in the tables, and**
2. **A summary of the steps taken and formulas used to calculate this particular regression model.**

**Attached are Excel files having two tables:**

**9293w\_ld** – Georgia’s hourly weather and load data for 1992-93

**94wtr** – Georgia’s hourly weather data for 1994

The columns of data in both files are:

column 1: MONTH OF YEAR (JAN=1, FEB=2, …)

column 2: DAY OF MONTH ( 1 – 31)

column 3: YEAR (92, 93, or 94)

column 4: HOUR OF DAY (1 – 24)

column 5: DAY OF WEEK (Sunday = 1, Monday = 2, etc.)

column 6: DRY BULB TEMPERATURE (DEGREES FAHRENHEIT)

column 7: WET BULB TEMP (DEGREES FAHRENHEIT)

The 1992-93 data file has an eighth column: the average electrical load over that hour in megawatts.

Using simple statistical methods, it is possible to construct estimates having and RMS error of about 440. (A commercially viable model will achieve errors of less than 100)

Some helpful load statistics to get you started:

**1992: 1993:**

lowest load: 889 lowest load: 943  
highest load: 3865 highest load: 4283  
average load: 1760 average load: 1979

If you have any questions, please don’t hesitate to ask. Thank you.