COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ADJUSTMENT OF GAS AND ELECTRIC RATES   )
OF LOUISVILLE GAS AND ELECTRIC COMPANY   ) CASE NO. 10064

O R D E R

IT IS ORDERED that Louisville Gas and Electric Company shall file, no later than May 2, 1988, an original and 12 copies, with copies to all parties of record, responses to the following request for information relating to Mr. Ryan's recently submitted regression exhibits.

1. Among Ryan's assumptions he states that any regression resulting in an R^2 of less than 50 percent was not included in his adjustment. Explain why an R^2 should be used as a criterion for a significant regression rather than the F-statistic, which measures the overall significance of the regression, or the individual t-statistics, which measure the significance of the parameter estimates (in this case the intercept estimate and the degree day coefficient estimate).

2. The regressions in which the R^2's fell below 50 percent and were consequently dropped are titled:

      a.   Large Commercial Daily Weekday

            Sales--Test-Year Winter

      b.   Large Commercial Daily Weekend

            Sales--Test-Year Winter

c. Fort Knox Daily Weekday

Sales--Test-Year Winter

d. Fort Knox Daily Weekend

Sales--Test-Year Winter

Turn to the first of these four regressions in Ryan's Response To Hearing Information Request, titled "Comparison of Temperature Normalization Methodologies." This page is titled "Large Commercial Daily Weekday Sales--Test-Year Winter."

(a) Is it not true that if a calculated F (in this case 80.74) is greater than an F-statistic with 95 percent level of confidence and degrees of freedom of 1 and 140 (i.e., the number of independent variables (1) and the number of observations (142 less 2 or 140)) which from any F-distribution table of any statistics text is approximately equal to 3.9, then that F-value is significant, implying that the estimated regression coefficients are significantly different from zero?

If no, explain why not.

If yes, is this not the case with the F of 80.74? Why wasn't this regression included in Ryan's analysis?

(b) Refer to the last row of this report, left of center under the heading "T for HO: parameter=0." This is a t-value for the estimated coefficient for heating degree days. This value is 8.99. Does Mr. Ryan agree that any t-value greater than a t-statistic with 95 percent level of confidence and 140 degrees of freedom, which is approximately equal to 1.65, implies that that coefficient is significantly different from zero?

If yes, is this not the case with a t-value of 8.99?

If no, why not?

3. Repeat 2(a) and 2(b) for the remaining three regressions (Large Commercial Daily Weekend-Winter; Fort Knox Weekday and Weekend-Winter).

4. Using Ryan's methodology, will Mr. Ryan agree that, if estimated slope coefficients for Large Commercial-Winter and Fort Knox-Winter are found to be significant and are weighted according to total number of weekdays and weekends in the test period, the inclusion of these weighted coefficients in the winter adjustment shown on page 2 of Ryan's exhibit will result in a larger winter adjustment and thereby a smaller overall temperature adjustment?

5. Please explain how changing customer levels were considered or reflected in the results of Ryan's regression estimates.

6. Since these regressions are for the 12-month period ending August 31, 1987, a period which Ryan has indicated is not normal, please explain how a normal relationship of sales to degree days has been considered or reflected in Ryan's results.

7. In these regression runs, what factors, other than MWH sales or degree days, have been reflected?

Done at Frankfort, Kentucky this 25th day of April, 1988.

PUBLIC SERVICE COMMISSION

ATTEST:

For The Commission

Executive Director