

New England's Residual Wholesale Electricity Market

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The independent system operator (ISO) concept was developed by the Federal Energy Regulatory Commission to support deregulation of the electricity industry in the U.S. In May 1999, ISO New England began buying and selling residual wholesale electricity on an Internet-based market system, the "residual" being electricity produced by a participant in the marketplace in excess of the demand of its customers. A market clearing price for spillover electricity has been recorded for each hour of every day since ISO New England's inception (see <www.iso-ne.com/market_info>). One hypothesis growing out of these data is the common belief that more people are likely to be at work (hence, using more energy) on Mondays than on Fridays. Is the price paid to all suppliers by buyers who purchase spillover power from the residual market typically higher at the beginning of the work week (on Mondays) than at the end (on Fridays)?

For each month in the first year of operation (May 1999 through April 2000), the hourly market clearing price for residual electricity (*PRICE*) was regressed on dummy variables (one for each hour in a workday (9 a.m. to 5 p.m.)); a binary variable for Monday observations (*MONDAY*); a binary variable (*TEMP*) equal to 1 on days that the high temperature in Boston, Massachusetts was over 90° or under 20°; and a dummy variable (*HOLIDAY*) equal to 1 for all Federal holidays, including Patriots' Day, that fell on a Monday or a Friday. The regression results for the first month of ISO New England's operation, May 1999, were:

$$\begin{aligned}
 PRICE = & 28.993 + 3.97 \text{ 10AM} + 3.52 \text{ 11AM} + 2.22 \text{ 12PM} \\
 & (22.79) \quad (2.34) \quad (2.08) \quad (1.31) \\
 & + 2.24 \text{ 1PM} + 1.34 \text{ 2PM} + 0.49 \text{ 3PM} + 0.36 \text{ 4PM} \\
 & (1.32) \quad (0.79) \quad (0.29) \quad (0.21) \\
 & + 4.46 \text{ MONDAY} - 6.64 \text{ HOLIDAY} \\
 & (4.95) \quad (4.43) \quad ,
 \end{aligned}$$

where $\bar{R}^2 = .31$ and absolute *t*-ratios are in parentheses. In May 1999 (with no recorded high temperatures over 90°), market clearing prices were significantly higher on Mondays than on Fridays ($p < .001$). Similar results were obtained for the months of September ($p < .001$) and to a lesser extent for November ($p = .039$).

Memorial Day weekend (in May) marks the unofficial beginning of summer and Labor Day weekend (in September) marks the unofficial end of summer. Both holidays fall on a Monday. On the Fridays before, people may be taking the day off or leaving early. Curiously, the regression results encourage support for these casual observations about long holiday weekends in May and September. Clearing prices tend to be higher on Monday than on Friday. (JEL L9, H4) *Atlantic Econ. J.*, 29(4): p. 474, Dec. 01. ©All Rights Reserved