

to ensure observance by loads of their obligations will reduce required transaction analysis to that of marginal spot market transactions, to the great benefit of system security. Finally, the network will be in a position to plan for rational reinforcement and expansion on the basis of forecast growth of load within its boundaries, rather than on aggregation of projections of hoped-for sales increases by power providers.

Might one speculate that such an approach to transmission access management might not be attractive to power suppliers?

Lester H. Fink

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California "Lessons" Derive from Mischaracterization of Our Work

We would like to correct some significant errors that appeared recently in "Lessons from the First Year of Competition in the California Electricity Markets" by Robert L. Earle, Philip Q Hanser, Weldon C. Johnson, and James D. Reitzes (Oct. 1999, p. 57). Their paper seriously mischaracterizes the results of a study we performed on the potential for market power in California's electricity market. In our study, we examined simulated California market outcomes for a variety of different generation plant ownership structures under a Cournot oligopoly competition. In their paper, Earle *et al.* attempt to compare some of these results to the actual market outcomes from California during 1998.

In their comparison, however, Earle *et al.* use results from a (clearly labeled) scenario we examined in which California's formerly dominant providers of electricity, Pacific Gas & Electric (PG&E), and Southern California Edison (SCE) have not

divested any of their generation capacity to other firms (see Figures 5A to 5D of Earle *et al.*). They compare these duopoly simulation results to actual market outcomes from 1998. From this comparison, they conclude that the Cournot simulation approach overstates the degree of market power present in California.

In reality, however, the bulk of SCE's and a significant portion of PG&E's generation assets had already been transferred to new ownership by July 1998. The market structure during the summer of 1998 featured at least seven firms with thermal and hydro capacity between 1,500 and 5,000 MW, rather than two firms controlling roughly 15,000 MW of capacity each. Not surprisingly, the resulting prices from a simulation of oligopoly competition between two very large firms produced much higher prices than those observed from the actual interaction of seven firms.

Had the authors paid greater attention to this critical issue, they would have found that our paper also presents simulations of Cournot competition under a scenario of generation

capacity divestiture that is much closer to the actual market structure that resulted during 1998. Using the same method of comparison as that used by Earle *et al.*, these results are illustrated for the month of September (the time during which market power concerns were greatest) in **Figure 1** here. In fact, the Cournot simulation approach using a market structure close to the one that actually was in place during 1998 produces remarkably accurate forecasts of actual market outcomes.

A careful comparison of 1998 market outcomes with Cournot competition, however, is a much more complicated undertaking than that implied by Earle *et al.*, or by Figure 1 here. To truly compare "apples to apples," one must also incorporate the correct fuel prices, hydro conditions, and imports, in addition to capturing the correct ownership of generation plants. Probably the most critical parameter to represent accurately is the level of demand in the relevant market. Although our simulations were based upon forecast demand levels for the year 2001, these demand levels turned out to be

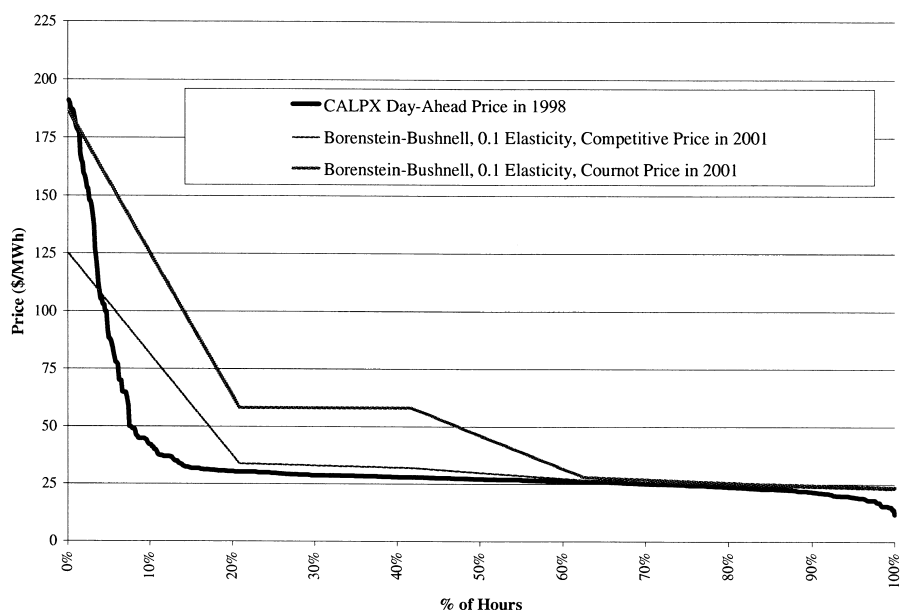


Figure 1: The Correct B—September

reasonably close to the actual levels that occurred in California during the very hot summer of 1998. Simply taking a price duration curve for 1998 and scaling the entire curve by the rate of inflation, as is done by Earle *et al.*, misses the fact that both production costs and potential market power increase nonlinearly with demand. Absent new entry of generation plants, there is no reason to expect that the *shape* of a price-duration curve would remain the same through several years of load growth.

The analysis of market power is likely to remain a central issue in restructured electricity markets for the near future. In order to move forward the understanding of this topic, it is important that participants in the debate be as clear as possible about the assumptions underlying their analyses.

Severin Borenstein and James Bushnell
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Messrs. Earle and Hanser Respond

Messrs. Borenstein and Bushnell seem to find two problems with our comparison of their model results with the actual price outcomes in Cal-

ifornia in 1998. First, they claim that we chose the wrong simulation scenario for our comparison. Second, they claim that a better comparison would have adjusted for fuel prices, hydro conditions, and imports. On both counts we respectfully disagree with their conclusions.

With regard to their claim that we chose the wrong scenario, we feel that they overlook the fact that even though the generator sales may have been announced at a certain date, actual transfer of ownership and control often occurred much later. In the time frame of our analysis, the actual control of the assets in the market, by and large, still remained with the original owners, the investor-owned utilities (IOUs). Thus, the scenario that best fit that situation, and that we used, was the scenario that they labeled "base case."

On the second count, they claim that we should have adjusted for fuel prices, hydro conditions, and imports. There is a subtle, but important, point that must be made here. The issue that Messrs. Borenstein and Bushnell raise is that we have failed to give their paper a "fair shake" by not using *ex post* data to evaluate the paper's model performance. We agree that what they suggest would

be correct if their paper's purpose was solely developing the underlying algorithms of the model. The problem is that from a policymaker's perspective, what is important is not just the model, but also the paper's predictions. Given the role that their predictions have played in policy discussions we thought it entirely appropriate to compare their *ex ante* results, published in their September 1997 paper, with the actual outcomes, rather than trying to adjust the data. If policymakers had chosen their market predictions as the benchmark against which the success of the market would be measured, then this forecast would have formed the basis for assessing the California market.

Notwithstanding this debate over the usefulness of our admittedly simplified adjustments to Borenstein's and Bushnell's results, we fully endorse and often use Cournot modeling for market analysis. The point of our article was simply to review California market performance. We regret any unintended implication of criticism of their model.

Robert Earle, Philip Q Hanser,
and James Reitzes
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❖ M E E T I N G S O F I N T E R E S T ❖

Conference	Date	Place	Sponsor	Contact
Electric Power 2000 Conference and Exhibition	April 4-6	Cincinnati, OH	The Trade Fair Group	713-463-9595 fax: 713-463-9997
DRPT 2000 International Conference on Electric Utility Deregulation and Restructuring, and Power Technologies 2000	April 5-7	London	IEE, IEEE, City University	(44) 0171 477 8000 fax: (44) 0171 477 8568
20th Annual Electric Utility Chemistry Workshop	May 9-11	Champaign, IL	University of Illinois	217-333-2881
Latin American Power 2000	July 11-13	Monterrey, Nuevo Leon Mexico	PennWell	918-831-9160 fax: 918-831-9161
GlobEx: The Global Energy Exposition-Energex 2000	July 23-28	Riviera Hotel Convention Center, Las Vegas	NTS Development, PGI Production, International Energy Foundation	(619) 294-2999 ext. 145 e-mail: kmoon@pgi.com