



Memorandum

To: ISO Board of Governors
From: Anjali Sheffrin, Ph.D., Director of Market Analysis
cc: ISO Officers, ISO Board Assistant
Date: June 20, 2003
Re: Response to Chairman Kahn's Questions on Impact of Price Cap

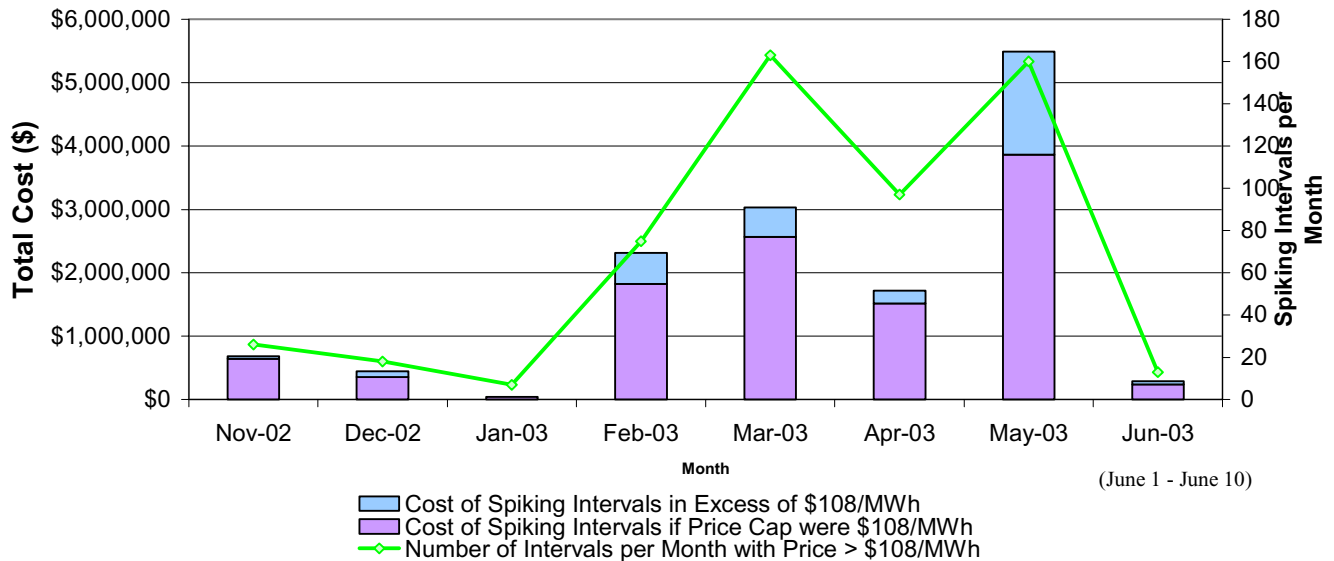
This report is informational only. No Board Action is required.

This memo is in response to Chairman Kahn's request at the June 6, 2003 board meeting for DMA to present an analysis on the market impacts of the \$250/MWh damage control bid cap as compared to the \$108/MWh cap originally proposed by the ISO in its May 1, 2002 market redesign filing.

The current market power mitigation measures, which include a \$250/MWh damage control bid cap (DCBC) and Automatic bid Mitigation Measures (AMP), have now been in place over seven months. From the period of November 1, 2002 through June 10, 2003, real time incremental energy costs may have been \$2,978,671 higher than they would have been if market-clearing prices had been limited to \$108/MWh during the period¹. The approximate \$3 million in cost represents 3.8 percent of total real-time incremental energy costs for the period of November 1, 2002 through June 10, 2003. The market-clearing price exceeded \$108/MWh during 559 intervals or only 1.75 percent of the 31,968 of the 10-minute intervals during the period. Many of these instances occurred during late February and early March when natural gas prices spiked to nearly \$10/mmbtu, and during the late May heat wave. The damage control bid cap is a soft cap and suppliers may bid in excess of the cap if they can present cost justification to support such bidding levels. Due to this reason, the impact estimate presented here should be viewed as the upper bound of the potential impact. The \$3 million in costs does not account for any bids that may be cost justified above the \$108/MWh bid cap or changes in bidding behavior that may result from the lower cap level. The following chart shows the monthly cost reduction that might have been realized had the bid cap been \$108/MWh (blue) compared to the total cost of the price spikes (blue + purple) and the number of intervals in which the price exceeded \$108/MWh (green line).

¹ The impact estimate assumes that the price cap would be lowered to \$108 by clipping prices above that value, and would have no impact on prices below it. However, experience with the price cap has shown that lowering the price cap can increase the number of prices just below the \$108 cap. This impact is very complex to estimate and has not been accounted for in these calculations.

Spikes Above \$108/MWh: Total Market Impact



To date, the \$250/MWh bid cap has not been reached. This has been due to a number of factors including fairly competitive conditions where suppliers have had limited ability to exercise market power and have had to bid well below the bid cap in order to get dispatched. It is also due to the AMP mitigation measures that restricts some suppliers' bidding behavior. Both the \$250/MWh damage control bid cap and the automatic mitigation measures work together to limit the amount of market power that can be exercised in the real-time energy market. For example, on May 28th when the ISO declared a Stage 1 emergency due to lack of reserves, operators dispatched all available resources from the BEEP stack and had to call limited energy out-of-market. However, the real-time incremental market-clearing price only reached \$191.32/MWh due, in large part, to the AMP restrictions. The resource that set the market-clearing price had a reference price of \$91.32/MWh, exactly \$100 below the resource's bid, equal to the AMP conduct threshold of the minimum of 100 or 200 percent above the reference price. We have found that the AMP conduct restrictions do not always limit suppliers' bids as the conduct test has been violated on numerous occasions. These suppliers' presumably violate the conduct test for one of two reasons. First, they may not be aware of the AMP bidding constraints. Second, they likely have determined that even if they violate the conduct test, it is improbable that they will violate the impact test, a necessary condition for any bid mitigation to actually take place.

A lower bid cap could limit the amount of market power that suppliers are able to exercise in the market and could result in lower costs to consumers as shown above. However, this assumes that all bids above the cap result from the exercise of market power and are not due to increased incremental costs.

Too low of a price cap can lead to resources simply bidding the price cap all the time, which would result in the need to implement administrative measures to select among resources. Having to resort to administrative procedures makes the system more difficult to operate and would not be an efficient way to dispatch resources. Second, gas prices have been volatile and can rise to the point where a low price cap may discourage some less

efficient units from responding quickly by bidding into the market. For example, in late February/early March the natural gas price hit nearly \$10/mmbtu. A generator with a heat rate of 15,000 would have incremental costs in excess of \$150/MWh. Third, a higher price cap provides a greater incentive for import participation in the CA ISO markets, which is critical during high demand periods. It also provides a greater incentive for in-state suppliers to act quickly to bring more resources on-line (accelerate the completion of maintenance and/or repair work), in response to an unexpected demand surge. Finally, a higher price cap provides greater price signals at a regional level for demand participation during high demand periods.

As we have explained in previous Board meetings, DMA gauges overall market competitiveness less on occasional price spikes and more on sustained market prices above competitive levels. We monitor market competitiveness using indices such as the price cost mark-up and the 12-month rolling competitiveness index. Unfortunately, this index has not been updated in 2003 because DMA has not been able to acquire information on day-ahead purchase costs from the utilities. We plan on filing a request to compel the utilities to provide this data. These indices can then be updated to provide indicators of market competitiveness and better information on the value of lowering the damage control bid cap or lowering thresholds for AMP mitigation.