



June 29, 2004

The Honorable Magalie Roman Salas
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: California Independent System Operator Corporation, ER02-1656

Dear Secretary Salas,

The California Independent System Operator Corporation ("ISO") hereby respectfully submits for filing an original and fourteen copies of two reports on the performance of the Automated Mitigation Procedures, one for the three months ended September 30, 2003, and one for the three months ended December 31, 2003, as directed by Commission's July 17, 2002 Order, *California Independent System Operator Corporation*, 100 FERC ¶ 61,060 (2002). Please return one file-stamped copy of each report to the messenger.

These reports also will be posted on the ISO's web site (<http://www.caiso.com>).

Thank you for your assistance in this matter.

Respectfully submitted,

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Fourth Automated Mitigation Procedure Report
October 1, 2003 through December 31, 2003
California Independent System Operator Corporation
June 29, 2004

As directed by the Federal Energy Regulatory Commission (“Commission”) in its July 17, 2002 Order¹, the ISO has prepared this fourth Quarterly Report on the Performance of the Automated Mitigation Procedure (AMP). AMP, proposed by the ISO in its May 1, 2002 Market Redesign 2002 filing, was approved by the Commission with modifications in the July 17 Order. This report provides observations and analysis of trends pertaining to the effectiveness of AMP mitigation for the period covering October 1, 2003 through December 31, 2003.

Effectiveness of the AMP Price Screen and Conduct Test. As described in the third AMP Quarterly Report, filed concurrently with this report, the ISO partitions bids into the categories *Potential Conduct Test Failure*, depicted in blue in the following chart; *Bona Fide Conduct Test Failure*, depicted in purple in the following chart; and *non-Conduct Test failure*, depicted in green in the following chart. This analysis differs from the previous AMP report in that it examines hours in which total markup² exceeds the minimum of \$20,000 or 40 percent of cost, and prices were at least \$100/MWh, using both “liberal” and “conservative” markup indices.³

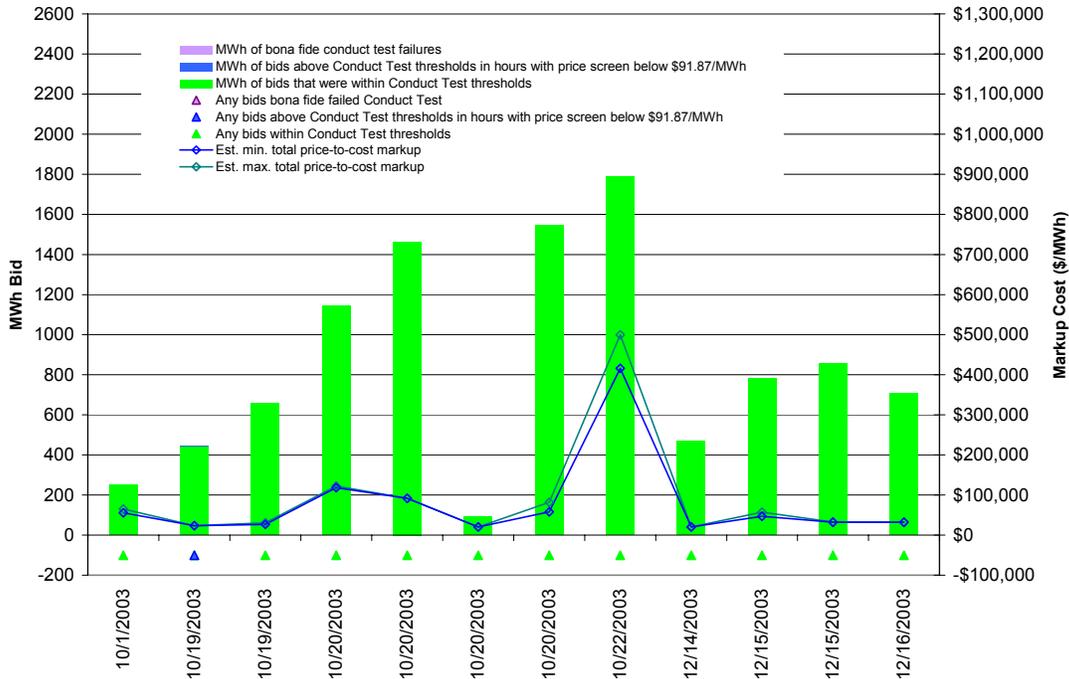
¹ California Independent System Operator Corporation, 100 FERC ¶ 61,060 (2002) (“July 17 Order”).

² Markup is the amount of a bid’s price above its projected cost.

³ The California ISO Department of Market Analysis estimates price-to-cost markup in two ways. The “conservative” index assumes that suppliers who bid above the MCP are bidding their true marginal costs. This creates a relatively high estimate of the competitive price as it ignores potential economic withholding, and thus a low estimate of markup. That is, a marginal cost relatively close to the actual market price indicates a relatively low markup. The “liberal” index incorporates the effects of economic withholding into the markup estimate. The liberal index reconstructs the supply curve so that bids above the MCP are replaced with estimated marginal costs, potentially causing some bids that were actually extra-marginal in the dispatch to become infra-marginal. This creates a lower estimate of the competitive price, and thus a high estimate of markup. Both indices skip units that were also skipped in the actual dispatch sequence due to constraints.

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Figure 1. Bids that Did and Did Not Fail the AMP Conduct Test, Sep-Dec 2003



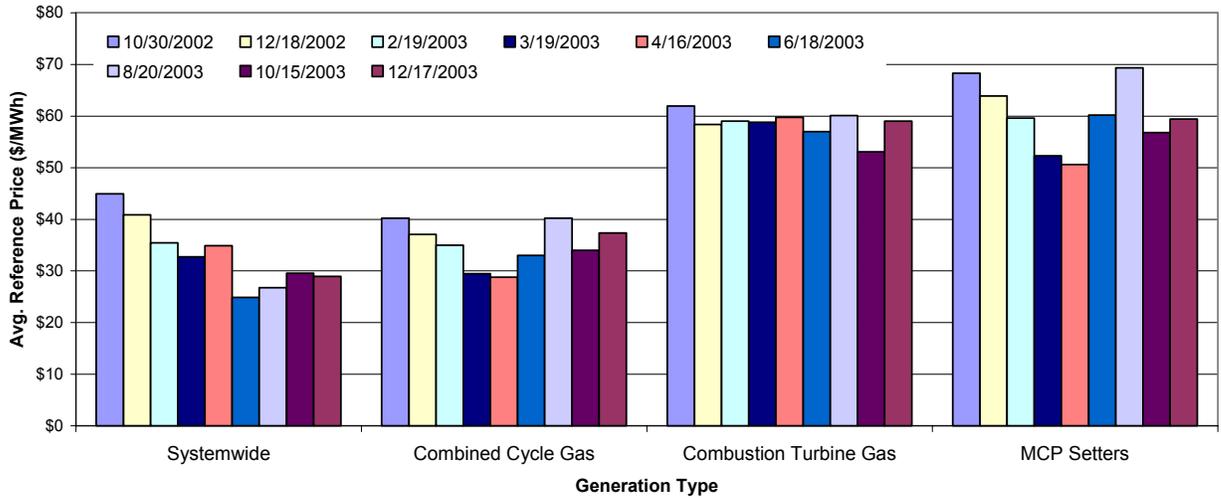
In all of the hours in which total markup was at least \$20,000 and at least 40 percent above cost and prices exceeded \$100/MWh, a bid that would have failed the Conduct Test was awarded a dispatch in a single hour, on October 19, 2003, between 6:00 and 7:00 p.m. (hour ending 19:00). The unit that set the price at \$125.86/MWh had a reference level of \$7.38/MWh, and was the only unit that bid in excess of its Conduct Test trigger threshold and was dispatched. However, the unit did not in fact fail the Conduct Test. The Conduct Test was not applied because the predicted price did not exceed the threshold of \$91.87/MWh. In this hour, the incremental market-clearing price was \$123.47/MWh, with both estimates of markup at approximately \$53/MWh.

In all other hours in which significant markup was identified, no bidders that were awarded dispatches bid in a manner that could have failed the Conduct Test. In particular, all bids during the price spike on the evening of October 20, 2003 with at least \$288,280 in markup over four hours, were within Conduct Test thresholds, as were those on October 22, 2003 between 2:00 and 3:00 p.m. (hour ending 15:00), with at least \$416,015 in markup in a single hour.

Reference Level Trends. When adjusting for changes in the price of natural gas, reference levels have been relatively stable for the market as a whole since the deployment of AMP on October 30, 2002. However, as discussed below, certain units have been able to sustain reference levels well above estimated costs by submitting high bids that are accepted in the market. Reference levels for the bulk of gas-fired thermal units that predominantly participate in the real-time market have varied less than \$10/MWh since fall 2002 on average, when normalized for changes in the price of natural gas, and less than \$20/MWh among a rotating portfolio of units that set the market-clearing price most frequently each month. The following chart shows indices of reference level trends for several generation groups on a bi-monthly basis through December 2003.

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**Figure 2. Index of Reference Level Trends by Generation Group,
 Normalized to Oct-02 Gas Prices, through Dec-03⁴**

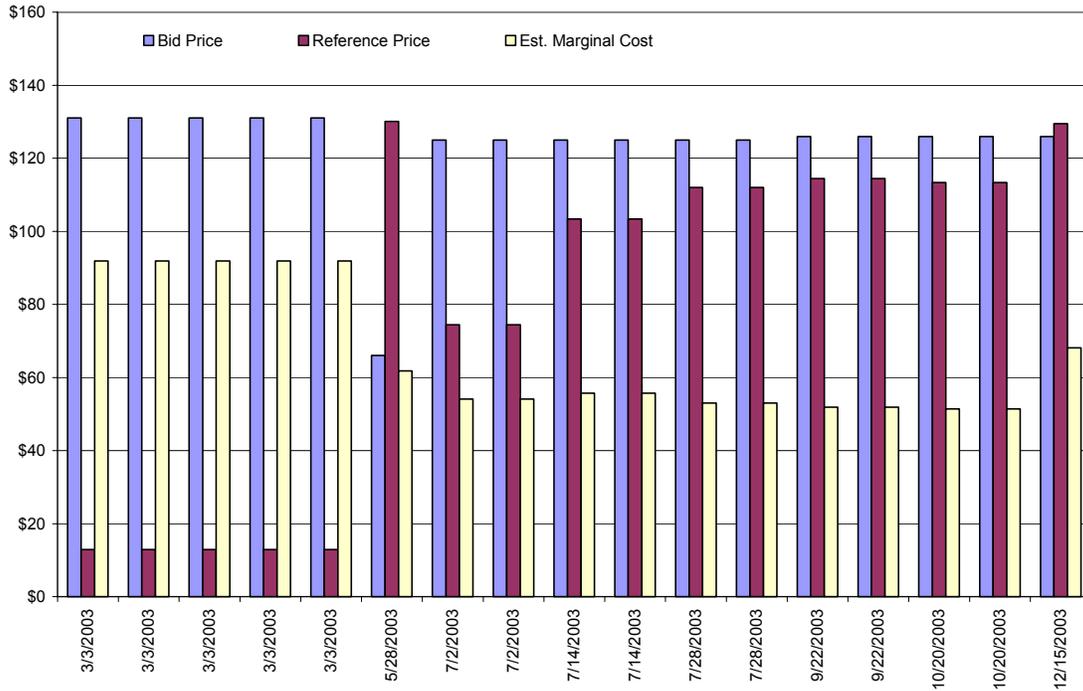


Certain units consistently bid prices well above marginal costs, and to the extent their bids are awarded in the real-time market, those units have been able to collect revenues in excess of those expected in a competitive market. Many such units are peaking resources that only operate when prices are high. For example, one unit that has participated since March 2003 consistently bids in the range of \$120/MWh to \$130/MWh, and has been able to increase its reference level into that range as a result, despite the relatively low costs of this unit. The following chart shows the bid price, reference price, and estimated marginal cost of this unit among hours it was operating in 2003.

⁴ The index deflates reference levels to the October 2002 gas price index of \$3.34/MMBtu. Actual reference level trends during the subject quarter were at least 32.4 percent higher due to higher gas prices, indexed at \$4.43/MMBtu (October 2003) and \$4.62/MMBtu (December 2003). The rolling portfolio of MCP-setting units consists of units that have set the real-time incremental market-clearing price at least eight times between 60 days before the beginning of the subject quarter and the end of the subject quarter.

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Figure 3. Estimated Price, Reference Level, and Marginal Cost of a Peaking Resource Among Hours it was Dispatched in 2003⁵



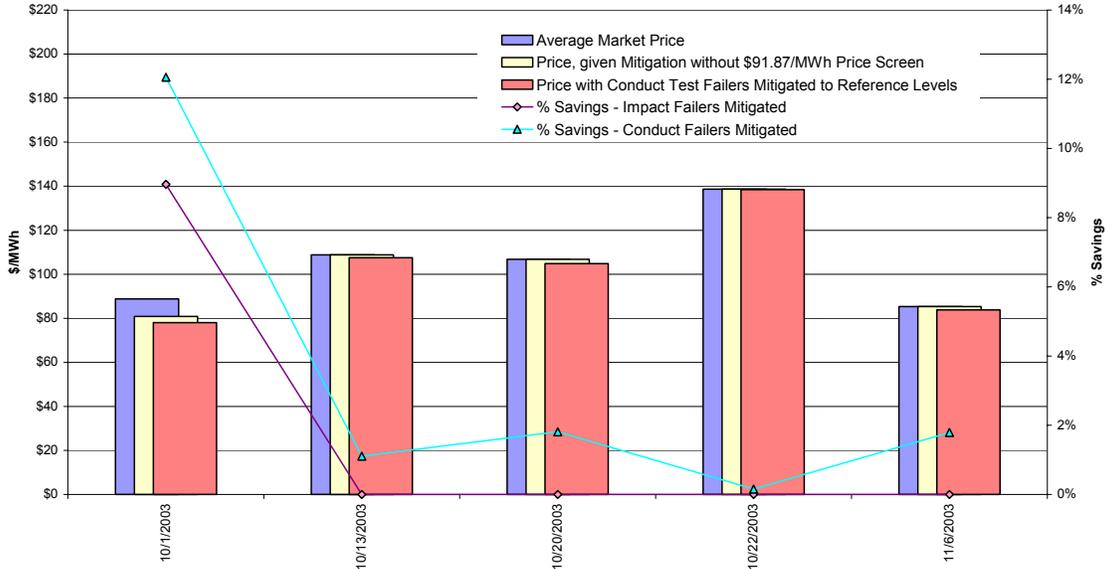
Estimates of market savings due to mitigation. To review the effects of the price screen and Impact Test thresholds on the overall market impact of AMP, the ISO has developed estimates of real-time market prices under the scenarios in which units that failed the Conduct Test are mitigated to their reference levels and then re-dispatched. When these units' bids are mitigated, the set of awarded bids changes. This is due to the fact that high and out-of-merit bids, which otherwise would have been in excess of their corresponding Conduct Test thresholds, may become in-merit when reference levels are substituted for the original bids.

The chart below compares daily average actual prices (denoted in blue), on days in which the daily average price exceeded \$85/MWh, to average prices that would have occurred had the price screen not been required (denoted in yellow). Also shown are prices that would have occurred had the price screen and impact test not been required for mitigation; that is, if all bids from units that failed the Conduct Test had been mitigated (denoted in orange).

⁵ This chart is *not* deflated for changes in gas prices; hence, the marginal costs of the unit vary. This is a relatively new, efficient resource and has a range of output levels.

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Figure 4. Average Prices and Percent Savings if Conduct and Impact Test-Failing Bids Were Mitigated to Reference Levels



Of all days during the subject quarter in which the daily average price exceeded \$85/MWh, AMP mitigation would only have had a dramatic effect on the first day, October 1, 2003, when the SP15 price reached \$145/MWh, and 10 MWh was procured as bid at \$350/MWh. However, due in part to the fact that this price spike followed a contingency loss of transmission, the real-time price projected prior to the operating hour was below \$91.87/MWh, so AMP was not actually applied during this price spike. A stronger mitigation scheme, in which all Conduct Test-failing bids are mitigated to reference levels, would have had a similar effect. On other days with daily average prices above \$85/MWh, neither the Impact Test mitigation nor the stronger Conduct Test mitigation would have had substantial effects.

To date, AMP mitigation has not shown to be substantially effective within the California ISO Control Area. Once again, this is with the understanding that markets have not yet been subject to the levels of stress seen in 2000 and 2001 that AMP was intended to prevent in the future.