

California State Auditor

Energy Deregulation:

*The Benefits of Competition Were
Undermined by Structural Flaws in the
Market, Unsuccessful Oversight, and
Uncontrollable Competitive Forces*



March 2001
2000-134.1

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CALIFORNIA STATE AUDITOR

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March 22, 2001

2000-134.1

The Governor of California
President pro Tempore of the Senate
Speaker of the Assembly
State Capitol
Sacramento, California 95814

Dear Governor and Legislative Leaders:

As requested by the Joint Legislative Audit Committee, the Bureau of State Audits presents its audit report concerning the operations of the California Independent System Operator (ISO) and its relationship with the Power Exchange (PX).

This report concludes that the failure of deregulation is not the result of any single cause, but rather of a complex combination of factors. Foremost among these are certain fundamental flaws in the structure of the power market. For instance, the requirement that the investor-owned utilities sell all the power they generated themselves and purchase all their electricity through sequential short-term markets operated by the ISO and PX. This requirement established a structure that allowed—even encouraged—strategic bidding through the underscheduling of the demand and supply of power on the part of both buyers and sellers in an effort to manipulate wholesale prices to their advantage. Strategic bidding is one factor that significantly contributed to high wholesale energy prices in the year 2000.

In addition, misjudgments on the part of regulators about the effectiveness of their corrective actions also contributed to the current crisis. Starting in 1998, market monitoring groups within the ISO and PX warned the Federal Energy Regulatory Commission (FERC) and the California Public Utilities Commission (CPUC) of potential problems with the market structure. Although hindsight has shown the accuracy of these predictions, neither FERC nor the CPUC fully or successfully addressed these concerns at the time.

Finally, in analyzing the factors contributing to the energy crisis, it is important to note that some were beyond any regulator or agency's control. Competitive market forces, such as the demand for electrical power that far outstripped the growth in supply, recent unusual weather patterns, the steep increase in the cost of natural gas, and costly air quality emissions requirements were all beyond the control of California regulators or the ISO and PX. Yet, all of these factors exerted considerable influence over wholesale market prices in the year 2000.

Respectfully submitted,

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SUMMARY

Audit Highlights . . .

Deregulation of California's electricity market has failed, not as the result of any single cause, but, rather of a complex combination of factors, including:

- Fundamental flaws in the power markets that arose both because of the terms of the legislation mandating deregulation and because of the way various entities chose to implement that legislation.*
- Deficiencies in the rules governing the power markets that were created, such as the requirement that investor-owned utilities sell all of the power they generated themselves and purchase all of their electricity through sequential short-term markets.*
- The existence of sequential short-term markets that have encouraged some market participants to engage in strategic bidding, which has contributed to higher wholesale prices.*
- Limitations placed by the regulators on the authority of the utilities*

continued on next page . . .

RESULTS IN BRIEF

When California took the national lead in the move toward electricity deregulation with the passage of AB 1890 in 1996, proponents promised lower retail prices and expanded power services. At that time, few could have imagined that less than five years later, consumers would face rolling blackouts and that two of the State's three investor-owned utilities would teeter on the edge of bankruptcy. Because the credit ratings of these utilities are so poor, the Legislature has been forced to authorize the State to purchase electricity in their place.

The fact that deregulation has failed to work is the result not of any single cause, but rather of a complex combination of factors. Foremost among these are certain fundamental flaws in the structure of the power market that arose both because of the terms of legislation mandating deregulation and because of the way various entities chose to implement that legislation. For instance, the California Public Utilities Commission (CPUC) mandated that the investor-owned utilities sell all the power they generated themselves and purchase all of their electricity through sequential short-term markets operated by the Power Exchange (PX) and the Independent System Operator (ISO). This requirement established a structure that allowed—even encouraged—both buyers and sellers to use strategic bidding through the underscheduling of the demand for and supply of power in an effort to manipulate wholesale prices to their advantage.

Underscheduling involves deliberately underestimating the amount of power that will be needed or available the next day. Strategic bidding was one factor that significantly contributed to high wholesale energy prices, and the accompanying underscheduling has frequently pushed the ISO to operate in a crisis mode to secure enough electricity to avoid blackouts. Additionally, the CPUC initially limited the investor-owned utilities' use of long-term contracts. Such contracts might have neutralized some of the effects of the jumps in wholesale prices that began during the summer of 2000. These prices currently remain at unprecedented levels. However, after the CPUC authorized the increased use of this type of contract in March 2000,

to buy power from generators pursuant to long-term agreements, and the hesitation of the utilities to more fully use their authority to enter long-term agreements, thereby missing opportunities to neutralize the effects of the jumps in wholesale prices during the summer of 2000.

- Misjudgments on the part of regulators as to the efficacy of their corrective actions, including decisions made by the Federal Energy Regulatory Commission and the California Public Utilities Commission.*
 - Forces outside the control of any regulator or agency, such as last year's unusual weather patterns and the steep increases in the cost of natural gas.*
-

investor-owned utilities still chose not to use them as a hedge against summer price spikes to the extent they could have. This turned out to be an expensive choice. For example, to the extent that the investor-owned utilities did use long-term contracts, they saved roughly \$706 million from May through September 2000 according to the PX.

In addition to these flaws in the structure of the market, misjudgments on the part of regulators as to the effectiveness of their corrective actions also contributed to the current crisis. Starting in 1998, market-monitoring groups within the ISO and PX warned the Federal Energy Regulatory Commission (FERC) and the CPUC of potential problems with the market structure and rules. Although hindsight has shown the accuracy of these predictions, neither FERC nor the CPUC fully or successfully addressed these concerns at the time. When FERC did act in response to the escalating energy crisis, it focused only on modifying the market design rather than on investigating and imposing sanctions against possible abusers of market power, believing that because California's markets are still developing, altering the market rules was the best way to correct design and implementation flaws and to deal with scarce supply.

When analyzing the factors contributing to the energy crisis, it is important to note that some were outside the scope of any regulator or agency. Certain market forces, such as recent unusual weather patterns and the steep increases in the cost of natural gas, were beyond the control of California regulators or the PX and ISO, yet both of these factors have exerted considerable influence over wholesale market prices. Over the past year, a number of such forces exacerbated the State's electricity situation, including a growth in demand for electrical power that far outstripped the growth in supply and the increased costs for meeting air quality emissions requirements. Moreover, few new plants have been built in the western region in general in the last decade, despite the fact that growth in population and industry has increased the demand for electricity throughout the region.

Several recent events have further changed the already fluid nature of the current deregulated electricity market in California. Effective December 15, 2000, FERC terminated the authority of investor-owned utilities to sell generation they owned or controlled through contract into the PX market. As part of the same December order, FERC also terminated the PX's wholesale tariffs that enabled it to operate as a mandatory exchange that the

investor-owned utilities must trade in. These two actions caused the PX market to suspend all wholesale energy trading as of January 31, 2001. Finally, because the worsening financial condition of the investor-owned utilities had eroded their credit with power generators, beginning in January 2001 the State stepped in to purchase electricity on their behalf.

RECOMMENDATIONS

Eliminate the Opportunity for Strategic Bidding

Market participants were using the sequential structure of the PX and ISO electricity markets to strategically bid through underscheduling in the PX market, effectively driving large amounts of energy sales and purchases into the ISO's markets. To reduce market participants' opportunity for strategic bidding through underscheduling, the ISO should do the following:

- Eliminate its real-time markets and execute forward contracts with generators to provide imbalance energy and reserves for reliability services.
- Cease to purchase ancillary services in the spot market and instead meet its forecasted purchases of ancillary services through sealed bids.
- Purchase any short-term ancillary services needed at individually determined prices.
- Consider the option of contracting for generation capacity.

Avoid Using a Single State Wholesale Price Cap

Because in some peak demand hours the ISO price cap becomes the targeted bid price for both buyers and sellers in the PX and sellers can bid into the ISO's market through out-of-market transactions, which are not subject to the price cap, it is unclear whether the price cap is effective, and it may result in higher energy prices. Therefore, if the ISO is unsuccessful in limiting its spot market purchases to very small amounts, the use of price caps should be confined to times when markets are found to be noncompetitive and supply is being withheld to force prices higher.

Give the ISO Additional Authority for Scheduling Power Plant Maintenance

In an effort to avoid the problems encountered in California during the winter of 2000, when scheduled plant outages coincided with high demand and unscheduled outages to cause severe shortages of electricity, the ISO should coordinate with power generators over the next two to three years, or until a competitive market is established, in scheduling plant maintenance outages. This may not necessarily require that the ISO determine outage schedules, but it will at a minimum require generator participation in scheduling known outages well in advance and in keeping to the established schedule.

Limit the Amount of Market Data Published on Web Sites

Although data have been published only after the fact, when coupled with the published ISO data and PX pricing models, these data allowed market participants to begin to develop their own models and bidding strategies and to check their bidding strategy assumptions and adjust them where necessary. Although recent events have caused the PX to cease trading, the ISO continues to publish a considerable amount of data from its markets. Therefore, it should do the following:

- Avoid making available to the public any new oversight and market-monitoring models it develops.
- Delay making public for at least one year data concerning bidding and the winning bids. This is especially critical for information concerning long-term contracts the ISO may be a party to.

AGENCY COMMENTS

The ISO stated that it agreed with the basic conclusions of the report, particularly with the major causes of California's high wholesale electricity prices during the year 2000. The ISO also agreed with the fundamental objectives of the recommendations but disagreed with some of the more detailed aspects of particular recommendations or believed additional detail and analysis would be needed to determine the advisability of the recommendations.

The PX expressed its appreciation at being able to review the draft audit report but chose not to respond. ■