

ENERGY REGULATION BRIEF

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**How CALIFORNIA
SHOULD RESPOND
TO HIGH
ELECTRICITY PRICES****Jonathan Falk**
Vice President

In 2000, electricity prices have increased dramatically in California. The average on-peak price per MWh at the Palo Verde hub was US\$15.74 in June of 1998, US\$28.32 in June of 1999 and US\$182.48 in June of 2000. August showed prices of US\$51.50 in 1998, US\$35.06 in 1999 and US\$219.96 in 2000. During 1998 and 1999, consumers were insulated from these prices. In 2000, customers of the smallest California investor-owned utility, San Diego Gas & Electric (SDG&E), began to face these prices as retail tariffs began to pass through the spot price, because the stranded costs of SDG&E had been paid off.¹

Investigations of the causes of these price increases have begun at both the California Public Utility Commission and at the Federal Energy Regulatory Commission. The findings of these investigations will have important repercussions for electricity market liberalization around the world. In this brief, I assess the different potential responses to these market developments.

Possible Reasons for the Price Hike

There are at least four prominent explanations advanced for the price increases. These reasons are far from independent of each other.

1. **Supply and Demand Imbalances:** Economic growth in both California and bordering states has been strong. In addition, hydro levels, which were unusually bountiful in 1998 and about average in 1999, are fairly low in 2000. While demand levels in California remain static to slightly higher, import levels have fallen significantly, both of hydro and of fossil imports from Arizona. California is a part of the larger WSCC² region; the neighboring markets in this region have seen their prices jump as well, with little complaint because the rest of WSCC remains regulated. California may have sufficient capacity for the moment, but some expansion of capacity is going to be needed soon. The larger WSCC region urgently needs capacity expansion.
2. **Lack of Consumer Response:** Only SDG&E customers faced these higher prices. Even they were given little notice, while the costs were being incurred, that their electric bills would be tripling and quadrupling. Hence, SDG&E's customers were unaware of the need to respond to high prices. Faced with totally inelastic demand, the purchasing agent for SDG&E, the California Independent System Operator (CA-ISO), was forced to pay whatever the market would bear.
3. **Market Power:** The accusations here are somewhat more inchoate, but the gist seems to be that the prices observed reflect an implicit conspiracy on the part of generators. No one to my knowledge has suggested an explicit conspiracy. Any analysis of market power would also have to distinguish between local market power (in the relief of specific transmission constraints) and the situation in which essentially all generation is needed by the market (so that every participant in the market is required to meet load). The fact that the

¹ Other utilities still add the losses from their spot price purchases into a balancing account, increasing their stranded costs for inclusion in tariffs, and holding off the day when their customers will face current spot prices.

² Western System Coordinating Council.

entire WSCC region has experienced high prices suggests that the problem does not simply stem from too few suppliers; the WSCC is a highly disaggregated generation market.

4. **Flaws in the Market Rules:** There are a host of idiosyncrasies to the California rules inhibiting actions that might be expected to lower price.
 - a) **Dispatch Inefficiency:** The CA-ISO does not run a least-cost dispatch market. Instead, they take balanced submitted schedules as given (even when they are manifestly not least-cost) and use an inefficient set of rules to resolve congestion. Thus, an inexpensive generator who is not part of a balanced schedule may not be substituted for an expensive generator who is part of such a schedule. This limited role of the CA-ISO creates an inefficient dispatch which in turn increases the market clearing price.
 - b) **Lack of Hedging Instruments:** SDG&E was not allowed to hedge positions in the forward markets. Thus, SDG&E could not even try to manage risk on behalf of its customers by purchasing large blocks of power in advance. This of course begs the question of whether such hedging would have been possible, and whether the attempt to do so would simply have driven forward prices to levels near that of recent spot prices.
 - c) **Price Caps:** The CA-ISO imposed bid price caps of US\$250 per MWh. Some have argued that the cap does not cover even the variable costs of some older generators, whose owners must purchase pollution permits, in addition to fuel. Stymied by this cap, some generators may have raised bids offpeak to recover costs which they had expected to recover at peak times. Of course, some may allege that this practice represents price gouging but, if so, it is hard to explain why such behavior should occur now and not before the bid caps were imposed. In practice, it appears to be a competitive response to price caps.
 - d) **Encouragement to Hold Back Units as Reserves:** The market for reserves in California is, if anything, even less stable than the market for energy. Since the markets are not cleared together, it is quite possible to observe higher prices for reserves than for energy. Generators are therefore emboldened to bid very high prices for energy, figuring that if they are not taken they can later bid into the reserve market and get similarly high prices.³ The inefficiencies of the reserve market spill over into the energy market by creating a higher opportunity cost of supply energy. In addition, CA-ISO heavily punishes units for unexpected outages. Holding back reserves can help a generator avoid these penalties.
 - e) **Last Minute Purchases:** The CA-ISO runs one market in which the large investor-owned utilities (including SDG&E) are forced to purchase day-ahead. Since this market is capped at a much higher level than the real time market, the utilities have purposely underscheduled in the day-ahead market to keep the price in this market below the cap in the real time market of US\$250 per MWh. The investor-owned utilities purchase only 70 percent of their load in the day-ahead market, so that the CA-ISO must find the rest of the load in the real-time market. It is argued that the CA-ISO's lack of flexibility in real-time drives up real-time prices.
 - f) **Governance of the CA-ISO:** It has been argued that, in California, the Independent System Operator is not really independent. Generators, it is argued, have too much power in the CA-ISO and have blocked useful changes to the market structure. In particular,

³ And yet more money if they are called on to generate.

they have recently blocked an initiative to force them to schedule their entire expected load in the day-ahead market or face the real time price for their own actual purchases.

Possible Responses

As might be expected, the suggested choice of corrective action depends on the diagnosis of the cause. The main immediate palliative is a retroactive cap on consumers' bills in SDG&E territory, with the shortfall deferred for later recovery. The two investigations mentioned above will doubtless propose other specific measures. In descending order of radical severity, they include:

1. **Scrap competition:** Some have argued that the deregulation of the generation market was simply unworkable and that a return to regulated rates is the answer. Mostly, this group consist of those who opposed the idea of anything other than a regulated utility in the first place. Advocates of this position have not explained how to unwind the divestiture of generation that has already occurred.
2. **Implement binding bid caps:** Proponents of binding bid caps generally argue that the ISO should maintain the right to call on particular units to generate in return for a payment which is established in advance. Critics of such proposals note that a likely result of this proposal in constrained areas would be that many generators would be paid only on this scheme, rendering the concept of competition nugatory.

If set too low, bid caps are likely to exacerbate the problems of supply and demand. It is difficult to see how price caps will encourage the construction of capacity (which will clearly be needed quite shortly no matter what one feels about the adequacy of current supplies).

3. **Correct various market imperfections:** No one doubts that many of the market imperfections cited above are exacerbating the situation. What is unknown is how much correcting them would help.
4. **Implement smarter purchasing, either by consumers or by the CA-ISO:** Many see some sort of demand responsiveness as an important measure. To do this, more consumers must be exposed to market prices (and price caps on bills removed) and consumers need to be educated about the price so that they can take remedial action. Unfortunately, remedial action in California is largely limited to total load reductions as opposed to reductions when price is high, since hour-by-hour measurement and billing is quite uncommon.
5. **Let the market work:** Streamline approval for new construction of generating units and transmission lines. Existing approval processes were designed to protect the environment and to protect customers from the risk of utility long term financial commitments to new generation. Neither protection is needed. Generation owners develop plant at their own risk; if there is a capacity excess customers will benefit from lower prices. New plants are cleaner than old plants and new construction will provide net environmental benefits. The high prices will spur new capacity construction, and the most important role for government is not to inhibit these market forces by restricting construction for invalid reasons. New units are in fact expected on line in the next two years. As in any other market, short-run profits by generators are the price to be paid for long-run generation adequacy.

With the exception of the last option (which may prove too wild for many politicians), none of these options is obviously driven by a desire for economically efficient competition. The immediate responses seem to be aimed at shooting

down prices and asking questions later, but attempts to cut prices arbitrarily always run the risk of exacerbating the capacity shortage, by discouraging investment.

An Unbinding Offer

Without wishing to pre-empt any future findings, I offer the following thoughts on a possible solution. Suppose one accepts the argument that real-time price information is not feeding through into economic purchasing decisions by consumers, due to timing and metering problems. In such conditions, the CA-ISO is effectively entering the market on consumers' behalf and, like any agent, needs to be given clear instructions. The current system obliges the CA-ISO to pay any price needed to meet all demand. Is this what consumers want? In practice, consumers should be happy to accept some load shedding in preference to extremely high prices. How high is too high? The maximum price that the CA-ISO pays should be aligned to consumer's willingness to be interrupted, ie to their valuation of lost load. In other words, maybe there's an economic reason to cap CA-ISO's buy price (as opposed to generators' bid prices).⁴

True competition always produces surprises – that's why it beats regulation at innovation. The current problems in California risk producing solutions that cut out both surprises and innovation. Such an outcome would be unfortunate. To preserve the benefits of competition, the response to a market problem should reflect its ultimate cause. If the problem is a shortage of capacity, capping prices will make things worse. However, perhaps consumers do need to adjust the rules, to instruct their agents to purchase electricity more wisely on their behalf.

⁴ Many electricity markets already contain such caps, in the form of maximum prices built into mechanistic pricing rules, such as the Value of Lost Load found in England and Wales and in Australia, or the Cost of Unserved Energy used in the Argentine pool. The Value of Lost Load in England and Wales, at around US\$5,000 per MWh, is an order of magnitude higher than the price caps being discussed in California. In Australia the Value of Lost Load has just been increased from the equivalent of US\$3,000 to US\$12,000 per MWh.

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