

Analysis of California's Market and FERC's Policies

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Overview of CA vs. FERC form 1 Nov. 2000 -- 7 Jan. 2001

[CA-FERC Papers](#)

Chairman Hoecker's concurring statement of January 4th

Highlights (1) Rate certainty -- "that means that ratepayers will not feel the pain *all at once*" (2) Price caps ... "I could support them ... if they were used as a method of affording a short "time out." (3) Calls on Sect. Richardson to convene the CA parties to map a comprehensive solution to the crises. (4) California should implement a capacity market. (5) The Commission should mandate a West-wide RTO. (6) Favors action that "could approximate" refunds to consumers if generators are found to have exercised market power.

Analysis

- Now recognizes that the financial crisis must be solved first or the fundamental market problems cannot be fixed. This is extremely helpful.
- Still misses that FERC's primary remedy, long term contracts, depends on capping or regulating short-term prices. Here's why.
 - Generators will sell long-term power for almost as much as they would expect to make in the spot market if they didn't sell long-term power. Even FERC agrees expected spot prices are high enough to sink CA. The only way to get a just and reasonable long-term contract price is to convince generators that their prospects in the spot market are not so good or dictate the long-term price.
 - FERC's December 15th Order raised generator expectations and the price of long-term contracts, thereby costing CA billions of dollars. The Chairman's present statement starts to undo some of this damage.
 - Shows more recognition of market power and some recognition that even without market power current prices would not be legitimate competitive prices.

"Structural Flaw" The lack of a capacity market in the CAISO, called a new "little-discussed structural flaw," has been a point of contention for years. Generators must cover fixed costs and this can be accomplished through energy price spikes or through capacity-market payments. CA chose the price spike approach and Commissioner Hebert has insisted that CA adopt the most extreme form of this approach--no price caps. Now Chairman Hoecker has championed the polar opposite approach of a Capacity market.

ISO-NE's capacity market exploded a year ago because of extreme market power problems in its capacity market. PJM's has been fairly successful, though they have sometimes ended up paying the total fixed costs of generators through price spikes on top of sizable capacity-market payment. This is because FERC does not cap the Eastern-Interconnection at a low enough price for a capacity-market design, and external price spikes suck capacity out of PJM. Regional design matters! The great benefit of a capacity market is that it allows market power in energy to be controlled with a fairly low price cap. There are intermediate possibilities, and given that FERC is now split between polar opposites, these should be considered.

Dec. 15th FERC Order:

Summary: FERC ends the requirement that IOUs trade through the PX. It implements a soft cap on the ISO's real-time market consisting of a \$150 price cap on low-cost generators, cost-of-service regulation on high-cost generators, and unspecified regulations on power marketers. A penalty of up to \$100 per unscheduled-MW penalty is imposed on unscheduled load in excess of 5%.

Crucial Change from Nov. 1: "In recognition of the unworkable complexities that the opportunity cost concept introduces in the ISO real-time imbalance market, we will eliminate it." (Order at 55.)

FERC's Theory: (An attempt to make sense, lacking a reasonable explanation from FERC:) Re-regulating the CA market will eliminate market power and excessive scarcity rents. Net-generators, fearful of yet heavier regulation, will sign long-term contracts at a reasonable price. These contracts will eliminate most of their market power and will limit the effect of excessive

scarcity rents after the soft-cap is lifted in May.

- Problems:**
- If the soft cap works, it will cause reliability problems for CA because it is not regional. (Pointed out by DOE and others last November.)
 - Cost-based regulation of high bidders is unworkably vague. "we fully realize that sellers will bid above their marginal cost in times of scarcity." (Order at 55.) No methodology determining how far above is just and reasonable.
 - Power marketers have no production costs and FERC now rules out opportunity cost as a criterion. All power can be sold through marketers, consequently the soft cap is essentially undefined.
 - In my [Nov. 19th analysis](#) I predicted "FERC may be tempted to drop the opportunity cost in order to rehabilitate the soft cap," and showed (p. 5) that this would lead to underscheduling in the real-time market.

- Dangers:**
- When the Western market tightens again, CA's net-generators may all sell out of CA to avoid the soft cap. Then marketers, who seem to have no price cap, will sell into CA at the Western market price which could be \$2000. If the IOUs have not yet purchased forward contracts, this could have destabilizing financial consequences.
 - If instead, the soft cap works, and the Western Interconnection's reserve margin falls to 2% , CA will be unable to compete, and the entire reserve shortage will be focused on CA. This would force a rolling blackout.
 - If power marketers are not capped, they may learn to exercise market power.

Myths:

1. FERC rejected re-regulation. "We reject proposals to return to cost based regulation." (Order at 52.) "By establishing a \$150 breakpoint and not pricing every MWh at the clearing price, spot prices will no longer be magnified." (at 29.) Had FERC simply replaced the single-price auction with a pay-as-bid auction, the effect would have been negligible. Not trusting pay-as-bid, they imposed "certain reporting and monitoring requirements to ensure that market power is not exercised." (at 5) Because opportunity cost has been eliminated, all that remains for the determination of "just and reasonable" are the generator's costs. The working part of the the soft cap is this cost-based market monitoring (regulation). This is a "pay-as-told" auction and if FERC follows through it will reduce prices. This is cost-based re-regulation if it works.

2. Forward prices are always lower. Forward prices are less volatile and FERC confounds volatility with high prices. The spot market "subjects California's ratepayers to the volatility of spot prices." (at 25) Not true. Ratepayers don't see the daily fluctuations. They will see a \$10 surcharge for 5 years. The problem for rate-payers is high prices. FERC says "our primary price mitigation is to eliminate undue reliance on the spot market." This only works if suppliers sell cheap forward contracts. But forward prices will only be low if suppliers believe this year's spot prices will not contain the market-power premiums and scarcity rents of last year. This is why FERC's soft-cap regulation needs to work.

Suggested Causes:

- Of High Prices**
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| 1. Increased costs | Agreed on by all. |
| 2. Normal scarcity rents | Agreed on by all. |
| 3. Excessive scarcity rents | Quite possible. Not proven. |
| 4. Market power | Popular and academic conclusion. FERC remains unsure. |
| 5. Lack of forward contracting | Widely accepted but for differing reasons. |
| 6. Single-price auction | FERC's diagnosis. Contrary to theory, experience and PJM.(1) |

- Of Reliability Problems**
1. Shortage of capacity
 2. Withholding of capacity
 3. Underscheduling

Analysis of Causes:

- Increased costs** Fuel costs can't be changed, but NOx credit costs can be. Generators may have a low incentive to reduce them, but this should not prevent someone from making the relatively small expenditures needed to save CA a lot of money.
- Normal scarcity rents** When supply is short, revenues will normally more than cover long-run average costs. This extra profit induces new investment. This must be expected from a market, and in the long-run it should average out.
- Excessive scarcity rents** Two flaws in the CA market cause scarcity rents to be higher than necessary to attract new investment. (1) Regulatory siting problems. (2) Load is not price responsive. If the market is very short of capacity, this effect could be very large.
- Market power** Joskow, Kahn, Borenstein, Bushnell, Shapiro, Wolak, and Puller, having studied the problem carefully, conclude that market power has been exercised for some time and that the market is still far from workably competitive. Exercising market power requires withholding, so it can easily be confused with genuine scarcity. This makes it difficult to tell just how short of capacity CA really is.
- Lack of forward contracting** Hope is placed on increased forward contracting for three reasons.
- 1. Bargain energy prices** FERC expresses this hope. Last spring energy futures in CA were a bargain. But who knew? In PJM they were a waste of money. Now they are very expensive in CA. Are they a bargain or a bad deal?
 - 2. Reduced risk** This is what forwards are for. They do the job and more should be allowed. This use requires giving up the chance of low as well as the chance of a high price.
 - 3. Reduced market power** Long term forwards work well, short term work poorly for this purpose. If the generators with market power sell a large fraction of their power forward, that will reduce their market power and the price of power.
- Single-price auction** Auction theory says pay-as-bid should not lower costs. All the economists I have asked from Oren to Hogan agree with this. FERC approves of PJM and the NYISO which both use single-price.⁽¹⁾ Even FERC does not seem to believe its own claim that pay-as-bid will work, because they insist on reviewing every bid to see if it is too high. This makes it a bid-as-told auction.
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DOE's Cap:

DOE has noted that FERC's soft cap is not enough. It proposes to require bids to equal marginal costs, and to clear the market at the highest accepted bid. This design falls prey to a common market power fallacy: the belief that the marginal bid determines the clearing price. It sets the clearing price, it does not determine it.

Infra-marginal (lower priced) bids determine which bid will be marginal. They are key to determining the market price. DOE would control these *bid values*, but the proposal does not stop *physical withholding*, apparently a key element in CA market power.

If physical withholding is not controlled, all withholding will become physical and reliability will deteriorate further. (See [Joskow](#) for evidence of physical withholding.)

DOE proposes a regional cap. As noted below, this is essential.

Hogan's Cap:

Chandley, Harvey and [Hogan](#) propose what they call a "bid cap," but which is defined to include the following unusual provisions. (1) Only imposed on suppliers with market power. (2) Requires a finding of market power in each case. (3) Requires capped

generators "to offer most or all of their capacity into the market." (4) Requires "difficult evaluations of why generation is not available in the market."

Without provisions (3) and (4) both Hogan's and DOE's cap would be ineffective for the reason noted in the discussion of DOE's cap.

An across-the-board cap requires none of these provisions to prevent withholding on peak. Chandley et al. recognize this point but omit it from their report.

Unlike an across-the-board cap, as noted by Chandley et al., their "bid cap" would not be effective in lowering prices in a shortage condition.

CA ISO's Soft Cap On Dec, 8th, after paying \$81 million the previous day, the CA ISO essential implemented FERC's soft price cap at \$250 instead of the suggested \$150. As predicted by many it failed immediately. PX prices for Sunday, the first day affected, averaged about \$280, for Monday \$600 and for Tuesday \$1000. This proves both that pay-as-bid does not keep the market price down and that price caps do. The ISO press release explains immediately that the measure will "allow the ISO to compete better for regional energy," thus making the point that a regional cap is needed. The \$81 million paid "out-of-market" proves the need for a hard cap. Not having one simply encourages the exercise of market power against a vulnerable ISO.

Helpful Remedies:

Price Cap	California needs a price-cap that really works. This means: 1. No loopholes (e.g. out-of-market, above-cap purchases). 2. A regional cap.
Real-time metering	Doug Hale suggests 10% of load under real-time contracts by June 1st. Demand elasticity is perhaps the most market-oriented approach. UCEI generally favors metering all large industrials.
Long-term forward contracts	Should be 3-5 years and cover more than half of the generating capacity of each of the five largest net suppliers.
Real-time charge	Real-time scheduling imposes a cost on the ISO and, if excessive, on CA by reducing reliability. There should be an equal charge on loads and generators for real-time trades.
PX Rules	All restrictions on forward contracting by UDCs should be dropped. The PX should not be bid-capped. The UDCs could still be required to use the PX as scheduling coordinator.
Divestiture	Prevent further divestiture (e.g. of hydro) until the market is fixed.

Explanations:

- Cap Design**
- Make it work. When CA generators heard of the FERC soft cap, they raised their long-term contract offer price by 1¢/kWh. That's roughly \$10/MWh x 20 GW x 3 years. That's the market valuation of FERC's Order. They think it will cost the State about \$5 billion.
 - The MSC is quoted saying "June prices (\$750 cap) were lower than August prices (\$250 cap)" to prove caps don't work. They did not mean this. They meant they are a very partial solution. Two weeks later they said "we see no practical alternative to the continued use of price caps in the short- and medium-run."
 - Indexing the cap to the operating cost of a peaker would allow a lower cap without danger of discouraging investment. The index should try to capture only gross affects and be kept simple.

- Loopholes**
- If you offer to pay more than the cap, they will make sure you do.
 - Market power is exercised by withholding. The out-of-market-purchases loophole gives market power a purpose even beyond the cap. This loophole decreases reliability by making withholding profitable even at prices above the cap.
 - If the cap is absolute, there is no point to withholding once the price hits the cap.
- Regional**
- If CA is capped at \$250 and the WSCC is short of power, that shortage will become CA's shortage, no matter what its origin.
 - If only CA is capped, CA generators will still have an incentive to withhold in an emergency to drive up the external price. This not only reduces reliability, it exports CA's high prices to the external market.
- FERC's Role**
- The ISO finds it hard to resist out-of-market purchases. Only FERC can make this policy completely credible and thus completely effective.
 - Only FERC can impose a regional price cap.
- Long-term Forwards**
- A generator that sells half its output with a long-term forward, will have only half its previous motive to raise the market price.
- PX Rules**
- Maximum forward contracting of the net suppliers is crucial, but there is no particular reason to kill off the PX at this time. FERC's bidding restrictions only the PX could have this effect.

Notes:

(1) The EPA SO₂ auction is "pay-as-bid." "In the first two years [two auctions], the auction exhibited a modest amount of price dispersion, reflecting the early price uncertainty. But in the next four years, the price dispersion all but vanished." -Peter Cramton, "A Review of Markets for Clean Air," J. of Economic Literature, Sept. 2000.