



What Went Wrong With California Electric Utility Deregulation?

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Overview of Presentation

- I. Adverse Conditions Affecting Calif. Market Performance in Summer 2000
- II. Serious Market Power Problems
- III. Moving Forward and Future Options for Attaining Market Health
- IV. Lessons Learned: Market Power Problems Are Not A California Only Problem.

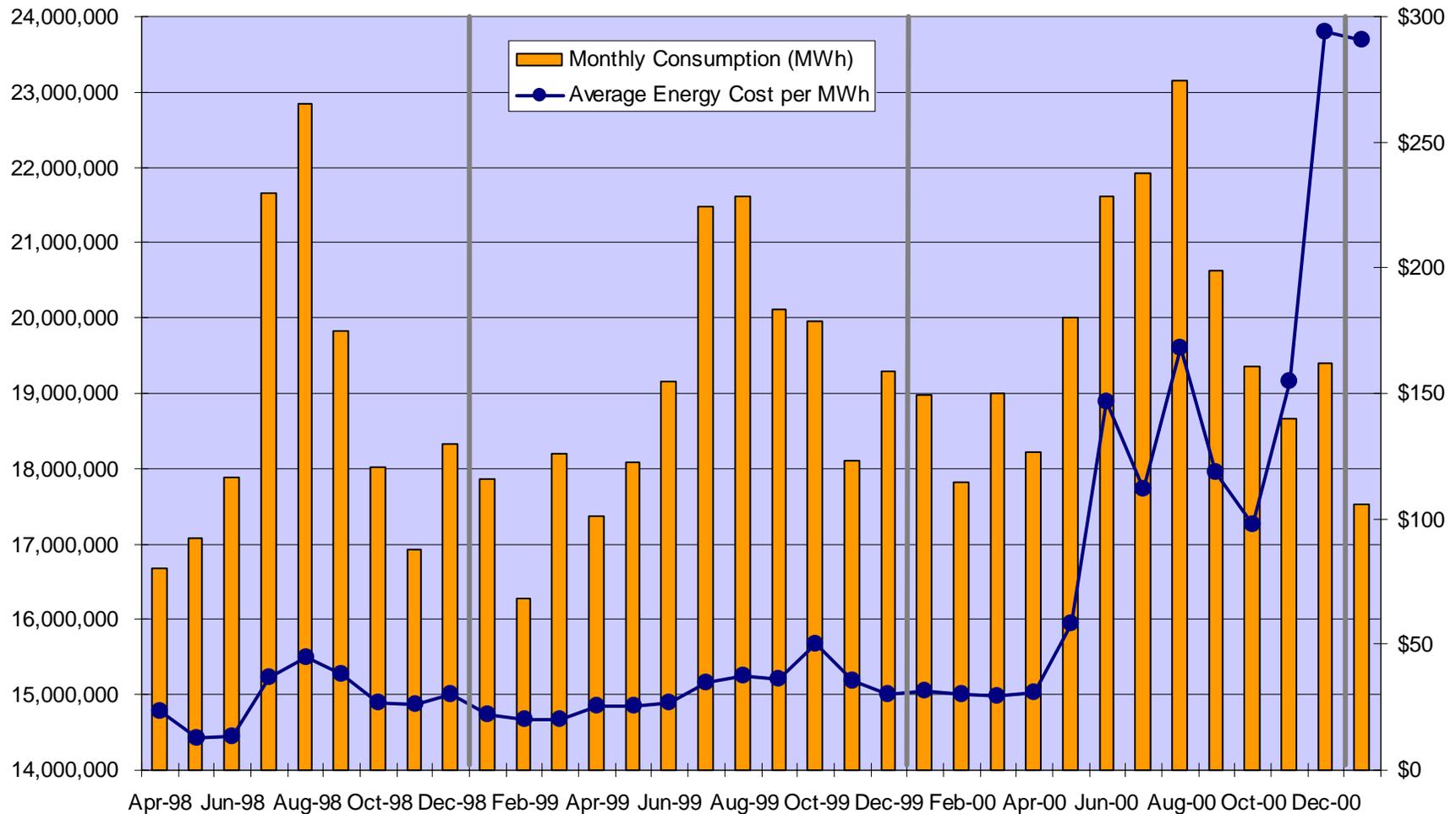


CALIFORNIA ISO

California Independent
System Operator

First Two Years Produced of Moderate Prices and Low Mark -Ups over Competitive Levels

- 1999 average mark-up was lower than 1998
- Price spikes in summer 2000 were due to both higher cost and higher market power mark-ups





I. Adverse Conditions Affecting Market Performance Since May 2000

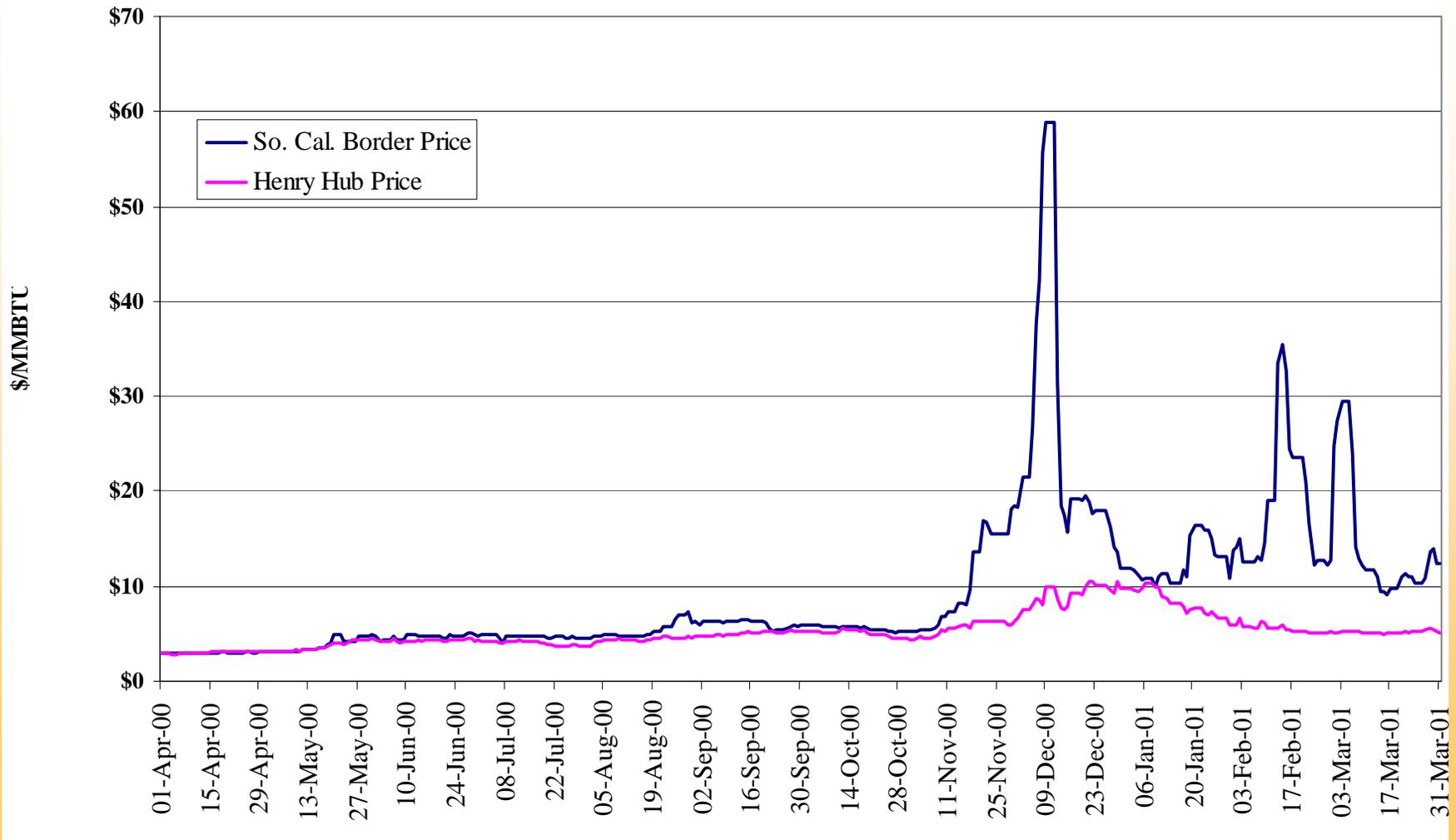
- 1 High Load Growth - Rate freeze meant no price signals to load to conserve
- 2 Low Supply Available and at Higher Cost
 - Lack of New Generation for Last 10 Years
 - Numerous Outages of Generation and Transmission
 - Increased Gas Prices, Reduced Hydro Generation and Imports, High Cost of Emissions
- 3 Extensive Regulatory Constraints
 - State Requirement to Buy/Sell at spot market and Prohibition Forward Contracting and Hedging by Load
 - Federal Granting of Market -based Rate Authority Without Sufficient Review of Conditions Allowing Exercise of Market Power
 - Lack of Retail Competition due to Variable Recovery of Stranded Cost

**Net Result: Market Power Multiplied under Tight Supply
Conditions**



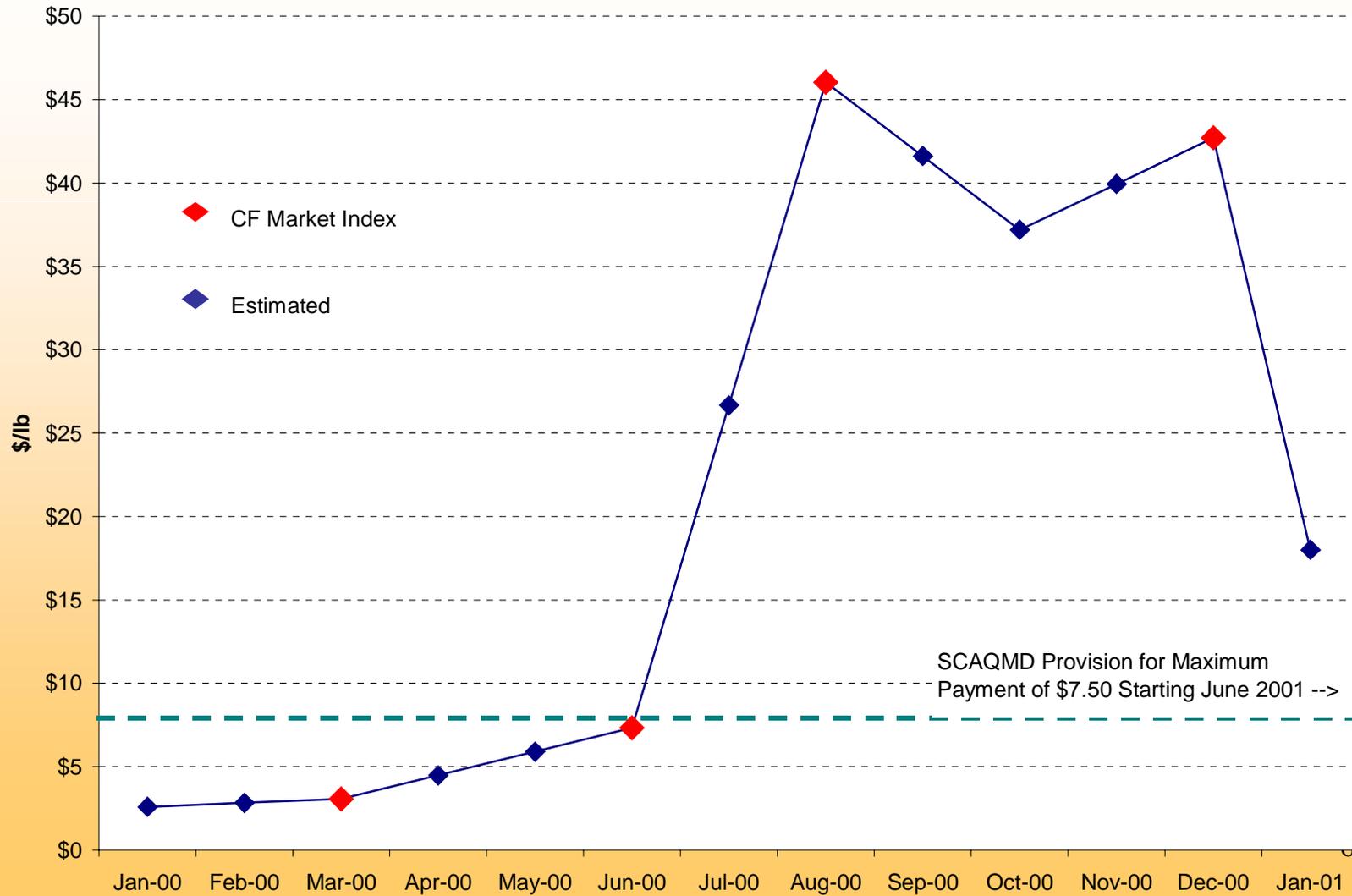
Natural Gas Spot Prices

Southern Cal. Border and Henry Hub



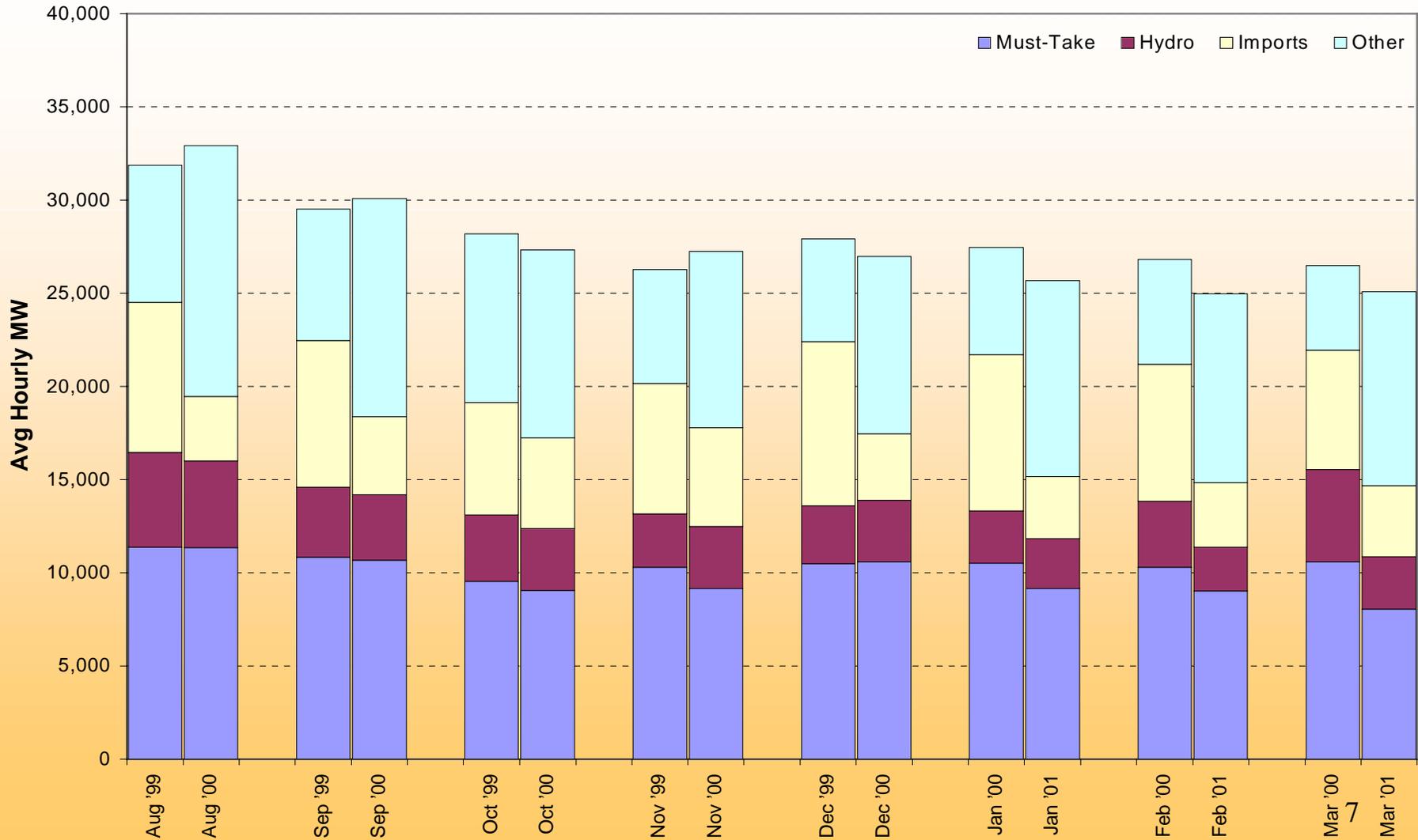


NOx Emission Costs (\$/lb)





Average Hourly Energy by Source





II. Serious Market Power Problems

- Market power is generally defined as a firm's capability to profitably raise the price above competitive levels for a significant period of time.
- Practical monitoring index: Price-cost mark-up — market clearing price above system marginal cost.
- Two ways to exercise market power: economic withholding and physical withholding. All market power bidding strategies will be carried out in one of these forms.
- Economic withholding
 - Submit bids at prices above producer's marginal cost
 - Most often observed in CA ISO real time market
- Physical withholding
 - Restrict output or withhold capacity from bidding into market
 - Most serious problem in period of tight supply

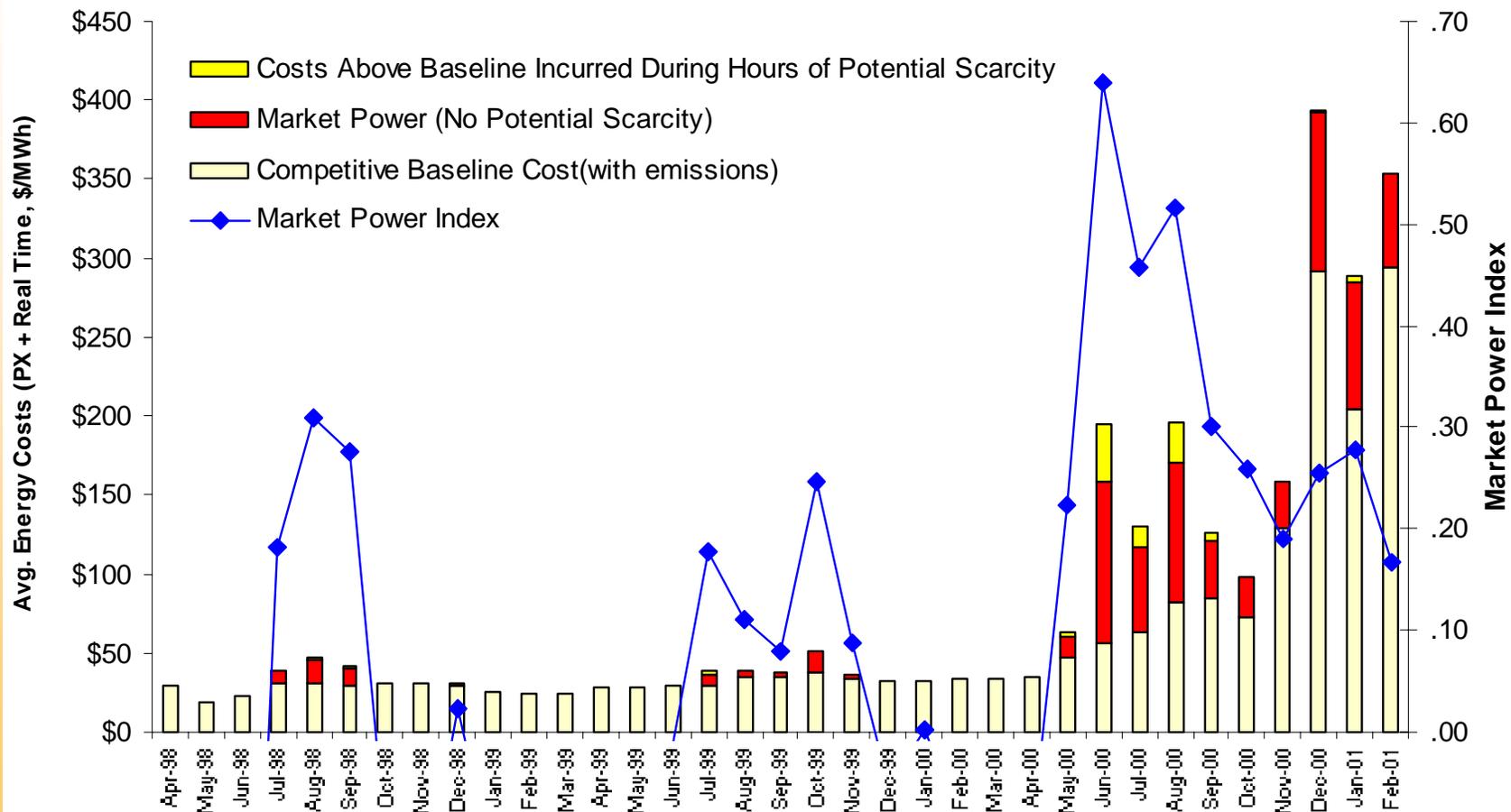


Moderate Prices and Low Mark-ups above Competitive Levels Followed by Significant Market Power From May 2000 – Feb 2001 (Impact Approx \$6.2 B)

1999 average mark-up was lower than 1998

Price spikes in summer 2000 were due to both higher cost and higher market power mark-ups

Market power estimates account for emissions and scarcity hours (which includes 10% system reserves)



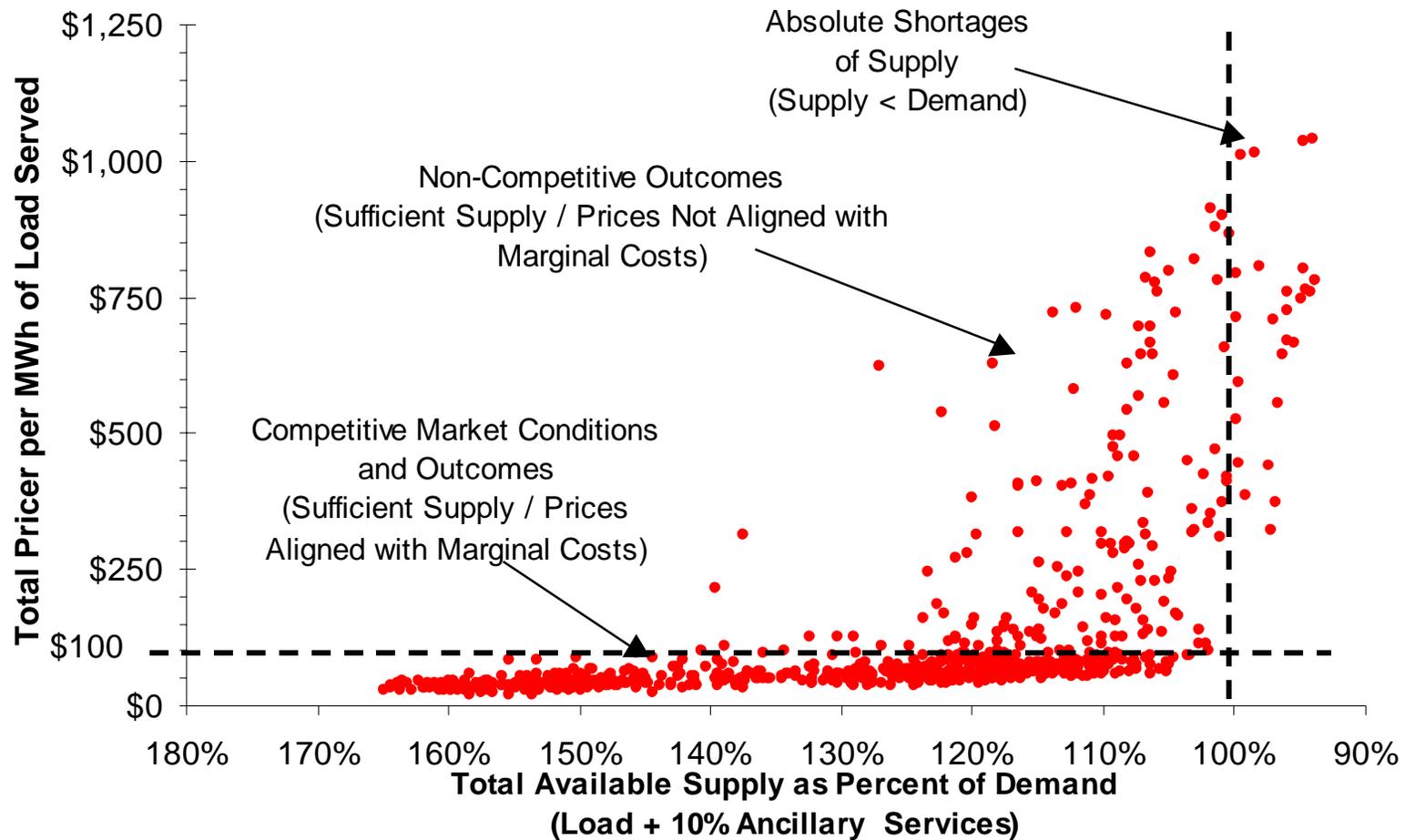


How do we distinguish market power from scarcity?

- When demand exceeds available supply, the market faces scarcity and the price mark-up can be viewed as scarcity rent. Although excessive rent is a concern, it may not be clearly an outright exercise of market power
- ISO monitors and estimates shortage. Our data show majority of the mark-up occurred during hours without shortage.
- The price-cost mark-up measure presented above separates the total mark-up into two conditions: hours with and without scarcity



Analysis of Market Power vs. Scarcity*



* Source: Report on California Energy Market Issues and Performance: May-June, 2000, Prepared by the Department of Market Analysis, August 10, 2000



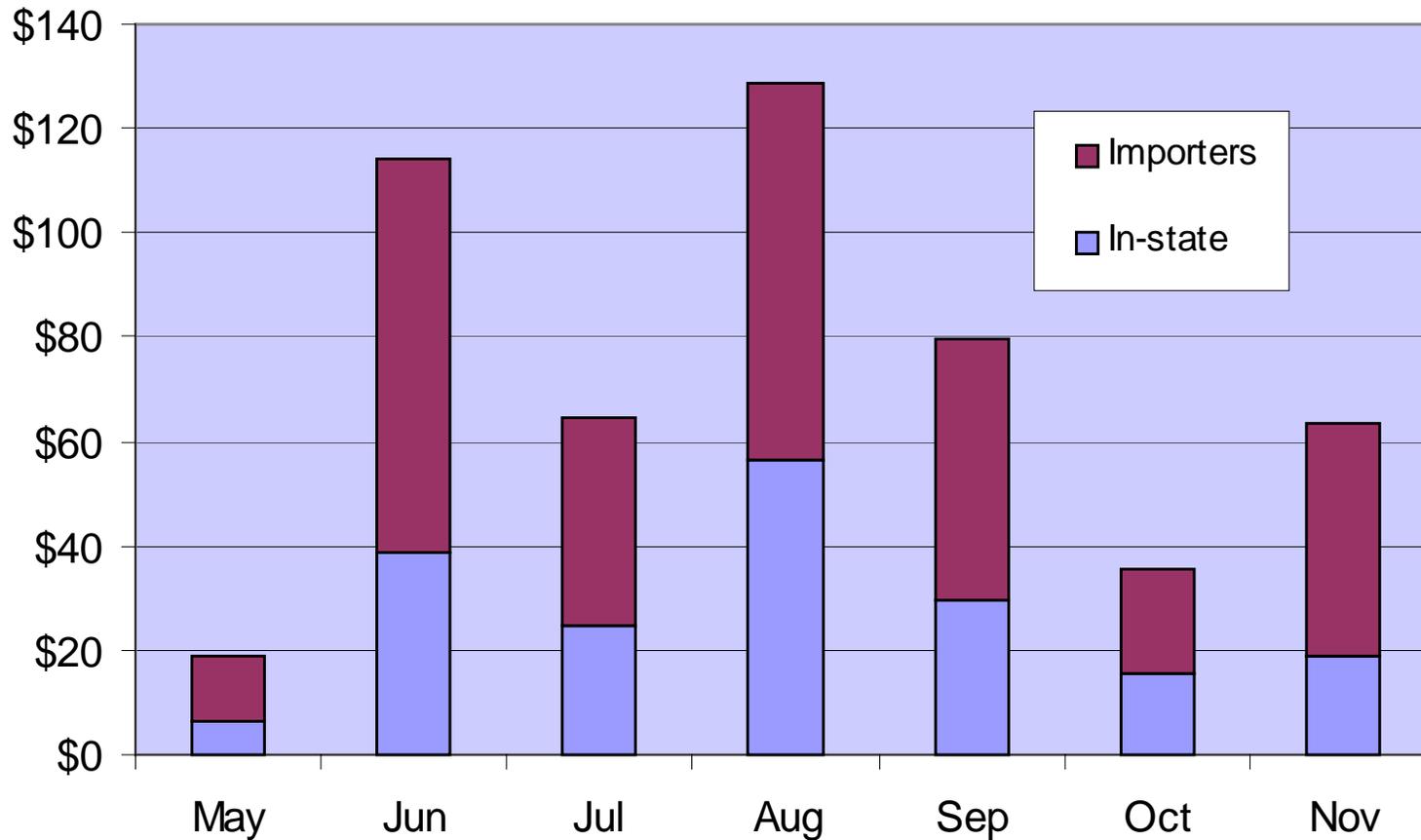
Individual Bid Mark Up Studied for May - November 2000

- How did individual supplier exercise market power (5 large in-state suppliers)?
 - Economic withholding (more than 80% time)
 - Physical withholding (less than 20% time)
- Bid-cost mark up by 5 large in-state suppliers and 16 importers
 - All 5 in-state and many importers bid excessively above cost
 - Together they made significant contribution to system price spikes



Estimate of Monopoly Rents for May-Nov 2000

Total In-state: \$190; Total Importer: \$315;
Grand Total: \$505 (\$millions)





Market- Based Rate Authority For Wholesale Suppliers Has Resulted in Unjust and and Unreasonable Rates

- Market power impacts are in excess of FERC precedence (10 to 15%)
- Rate of return excessive compared to conventional regulated rate of return 13-16%
- Rate of return excessive of average market rate of returns of most unregulated industries
- Rate of return in excess of any rate of return for power industry anywhere in the country
- Rate of return in excess of what is needed to bring in new generation (High rate may become destabilizing factor to the generators themselves!)



III. Problems to Address to Move Forward?

- Market Structural Problem
 - Lack of responsibility for adequate supply
 - Lack of long term contract
 - Lack of real -time price signals to demand
 - Lack of adequate market power mitigation tools
- Inaction from regulatory bodies in time of crisis
 - FERC failed to stem rampant market power with soft cap
 - CPUC late in correcting policies for shifting from spot market to long-term contracts and development of price responsive load
 - State was slow to intervene

Result: Billions of dollars of debt and a market meltdown

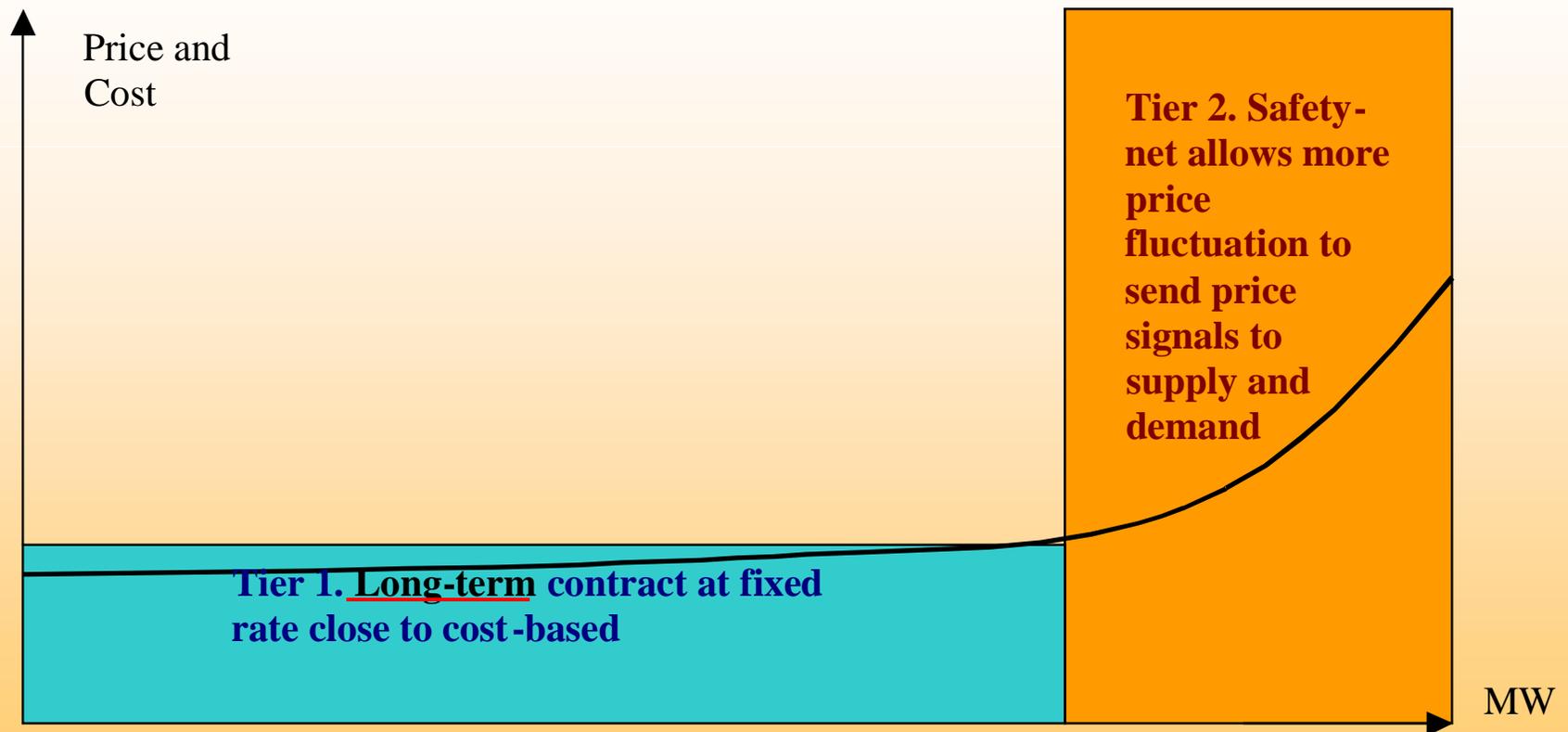


Moving Forward

- Stabilize current financial condition
- Speed development of generation and transmission upgrades
- Develop real-time price signals to encourage price responsive demand and help mitigate market power
- Establish direct market power mitigation measures
 - FERC must question continued market based rates authority for generators
 - FERC must adopt additional market power mitigation for Summer
 - Forward contracting with Calif load at cost based rates for 70% output. 30% at market-based rates,
 - or
 - Capacity requirements, availability standards, bid price mitigation in real time and A/S markets
 - Gas market power mitigation



Approach I: Two Tier Design for Market Power Mitigation





Approach II: Market Stabilization Plan

- Objectives:
 - Control Cost for Consumers
 - Provide Greater Stability for ISO Operation
- Measures:
 - Resource-Specific Cost-Based Bid Caps combined with Annual Fixed Capacity Payments
 - ISO operates a forward energy market to accommodate State purchases of net short energy not covered by bilateral contracts, and to conduct congestion management
 - Day-ahead Curtailment of Exports based on ISO Tariff



VI. Can California Problem Occur in Other States?..YES

- (1) On East Coast- Hot weather from Maine to western PA will cause \$1000 price spikes many hours for the same reason occurring in CA. Occurred in East Coast in summer of 1999. Summer 2000 very mild in East.
- (2) California is alone in not allowing forward contracts. High Prices in other states will affect less than 10% of their purchases rather than more than 60%. However, vesting contracts are expiring in the East Coast markets. Most of the load-serving entities are not signing up, so the amount spot market exposure is growing. This creates a greater incentive to exercise market power. So the potential gain is greater for generators and the potential damage to consumers higher.
- (3) Lack of real-time pricing at the retail level in any East Coast ISO. Allows suppliers to charge what the market will bear. This problem exist in all states.
- (4) Lack of Supply and Lack of New Investment is Western States problem.



Lessons Learned

- The *market* works reasonably well with sufficient supply margins and price responsive demand. But market was severely constrained by regulatory restrictions and incomplete deregulation
- Checklist of issues to address to avoid the California experience in deregulation
 - Avoid Partial Deregulation
 - Insure Responsibility for Adequate Supply
 - Encourage Retail Competition
 - Allow Significant Forward Contracting
 - Encourage Price Responsive Demand
 - Effective Market Power Mitigation for Elec and Gas
 - Effective State and Federal Regulatory Coordination