

# **California's 2000-2001 Electricity Crisis: Causes and Lessons**

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# Simplified Causes & Dynamics of the Crisis

## *Retail Market*

**Mandatory  
Generation  
Divestiture**

**Mandatory  
Buy-Sell Rule  
in PX/ISO  
Spot Markets**

**Utilities became Net Buyers  
but without the ability to do  
much hedging**

**Retail Rate Freeze**

## *Wholesale Market*

**Demand growth but  
failure of California's  
market structure to  
support much new  
generation**

**Suppliers Gained  
Market Power**

**Unreasonably High  
Wholesale Prices**

**Political  
Dithering  
& Utility  
Insolvency**

# The Basic Causes of California's Electricity Crisis



# California's Short-Sighted Restructuring Rules

**Utilities were forced to become net buyers and become over-exposed to spot-market prices.**

- Aggressive **generation divestiture without transitional buy-back contract hedges**
- **Mandatory buy-sell rule** required utilities to sell all their generated power at spot prices and purchase all retail requirements at spot prices
  - **Regulators repeatedly rejected utilities' attempts to hedge** their power purchases through longer-term contracts

**CPUC precluded utilities from collecting the high wholesale power costs from retail customers.**

- Transitional **retail price freeze**

# What Caused the High Spot Prices?

## Adverse Market Fundamentals

- A decade of **demand growth far outpaced new generation** construction throughout the West.
- **Low hydroelectric year** in the Pacific Northwest
  - Did not directly cause the crisis, but created conditions that were exploited by tacit collusion and market manipulation.
- **Skyrocketing gas prices**
  - Pipeline capacity shortage to California and gas market manipulation in southern California.
- Air emissions limitations and **high-priced emission credits**

## Why the High Wholesale Prices?

# Market Structure, Rules, and Conduct

- **Resource inadequacy:** Lack of **responsibility for adequate installed capacity**
  - **Mandatory buy-sell rule:** Large amount of **unhedged power purchases**
  - **Complex market structure:** Sequentially, rather than simultaneously, optimized energy and ancillary service markets was inefficient and facilitated market manipulation (a market structure first encouraged and then exploited by Enron).
  - **Price-Inelastic Demand:** Uncoupled retail-wholesale markets; Underdeveloped **demand-side responsiveness**
- All of these factors facilitated the exercise of **supply-side market power**

# More Causes and Contributors to the Crisis: **Regulatory and Political Inaction, Dithering & Stalemate**

- **CPUC's refusal to approve** sufficient utility use of longer-term **forward hedging** contracts.
- CPUC's presumably **complacent attitude** about the devastating real effects of utility **insolvency/bankruptcy**.
  - **Despite very clear warnings from the financial rating agencies** as early as September 2000 that PG&E and SCE were headed toward insolvency in early 2001 unless something was done the CPUC persistently refused to end the retail rate freeze.
- **FERC's unreadiness** to expeditiously identify the exercise of market power and enforce "just and reasonable" wholesale prices.

# Lessons Learned



# Lessons Learned

## Market Structure

- **Attempting to jump the wholesale and retail chasms in a single bound** was probably a mistake. (Steve Herod had been absolutely right about this.) We should have gotten the competitive wholesale structure in place first before introducing retail competition.
- Trying to introduce robust retail competition while **retaining utilities as regulated “default providers” is a doomed half-way house** that will likely never work very well.
- **Resource adequacy** was, and perhaps still is, one of the most troublesome design challenges in electricity markets. Somehow, LSEs must be made responsible for supporting their fair share of generation capacity.
- **Wholesale and retail markets must be better linked** through real-time pricing and demand-response mechanisms. Encourage retail participation in wholesale markets through real-time pricing and voluntary load reduction programs.

# Lessons Learned

## Control of Market Power

- **Electricity markets are very vulnerable to the exercise of market power.** When supply-demand balances tighten, the conditions for “**tacit collusion**” to exercise market power can be encountered surprisingly quickly.
  - This susceptibility of electricity markets to market power is **exacerbated by the price-inelasticity of short-run demand.** Getting **more demand-response** into the wholesale markets will help but likely not eliminate the vulnerability altogether.
- Failure to get the **resource adequacy framework** correct will result in very difficult to manage market power problems.
- **Market power is best controlled “structurally” and “before-the-fact”** by encouraging forward contracting by load-serving entities and enforcing maximum supplier market share rules.

# Lessons Learned

## Regulatory/political responsiveness--California

- **Unchartered waters are likely to contain hidden reefs and shoals.** Regulators and politicians must be ready to expeditiously respond to unforeseen structural problems and unintended consequences.
  - In governing, there is a time for dithering and temporizing—and **a time for bold action**. The trick is to recognize the type of situation you are in. In this case, the impending disaster of utility insolvency was *perfectly clear* for months and California government did essentially nothing.
- **Utility bankruptcy/insolvency** involves much more than simply changing the names on the stock certificates. It **has very real and painful consequences for everyone**. It doesn't provide a solution—It provides an additional problem to manage.

# Lessons Learned

## Regulatory/political responsiveness--FERC

- Although FERC had been pursuing market-based price regulation since Martha Hesse's efforts in the 1980s, **FERC was not prepared to apply anything more than “the pornography standard”** to detect “unjust and unreasonable” prices when they finally showed up at FERC's doorstep.
  - In FERC's defense, **perhaps regulation inherently involves “learning by doing”** and, therefore, regulation necessarily involves a certain amount of “unpreparedness” until a specific situation comes down the pike. (The Supreme Court doesn't hear hypothetical cases; it only struggles to rule on actual ones.)
- **An ounce of prevention is worth a pound of painful cure.** FERC should concentrate on fostering wholesale electricity markets that structurally support and encourage **resource adequacy**, sufficient **forward contracting by LSEs** (even though they have little or no direct authority over LSEs), and **diverse market shares**.

# Lessons Learned

## Advice to Load-Serving Entities

- As the referee says at the beginning of every boxing match, **“Protect yourself at all times.”** Don’t expect that regulators can protect you. Regulators are constrained by their statutory authorizations and they operate in “regulatory time”—which is exceeded only by geologic time.
- **Statutory constraints within the structure of the FPA may make it impossible to fully compensate victims for market power abuses** (e.g., the rules governing “subject to refund” dates).
- Load-serving entities must protect themselves from the vagaries of spot markets through **significant forward contracting or vertical integration into supply.**

