



The background of the slide is a dark, atmospheric painting. It depicts a landscape with a large, dark, winged figure in the foreground, possibly a demon or a creature, looking towards the viewer. In the background, there is a castle or a large building with a prominent tower, set against a dark, moody sky. The overall tone is somber and mysterious, fitting the title 'A Year In Purgatory'.

# **A Year In Purgatory: Electric Markets Since May 22, 2001**

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# A Year In Purgatory: Electric Markets Since May 22, 2001

- What went wrong?
- This week's "Emergencies"
- Villian and Victim
- The Role of Secrecy
- AB-1890
- Twenty Years of Efficient Markets
  - One Year of Inefficient Markets
- May 22, 2000
- Market Power
- Inefficient Administered Markets
- Solutions?
- Resource Alternatives



# What Went Wrong?

- The Problem In A Nutshell
- Changing Markets
- Established Special Interests
- Legislative Spaghetti





## The Problem In A Nutshell

- At the turn of the century Sam Insull invented trusts, utilities, stock manipulation, pyramiding of control, and the Securities and Exchange Commission
- He wrote the laws, established the Commissions, and founded the utilities
- Ultimately, he implemented a ninety year cost plus structure that left North America with the best (and most costly) electric infrastructure in the world



# Our Founder - Sam Insull



## Changing Markets

- Jimmy Carter's 1979 law, the Public Utilities Regulatory Practices Act, allowed free entry into bulk power generation
- Competition quickly reduced the costs of generation by a factor of three
- The resulting measuring stick effect made traditional regulation look very expensive



## Established Special Interests

- Insull's regulatory scheme created a series of special interests
- None of these would exist in a normal market
- California is an extreme
  - Hispanic Energy League
  - Lesbian Wind Association
- Unfortunately, even more staid states have spawned numerous special interest groups from the Gray Panthers to Green Peace





## Legislative Spaghetti

- Each state has attempted to placate a variety of different groups
- Environmentalists have received largely symbolic funding for a variety of ultimately worthless pursuits
- Business has gotten some access
- Homeowners have gotten rate guarantees
- Utilities get market pricing guarantees
- The result in every state has been to bring far, far too many cooks into the kitchen





## Is FERC Helping?

- Yes and No
- On the yes side, they fired the ISO Board in December
- On the no side, they eliminated and now have resuscitated the short term administered market
- They have asserted an authority they are unwilling to use
- For the April 26th order, the document reads better if you staple the dissent to the cover.

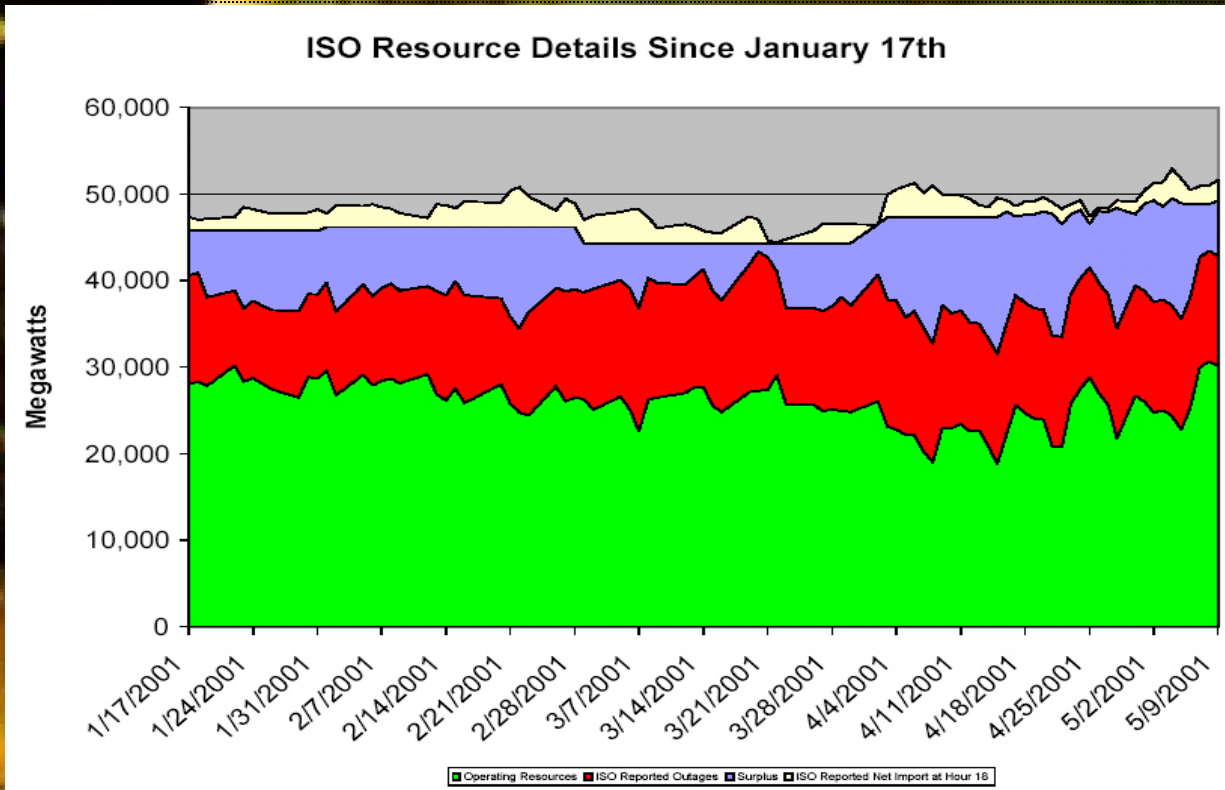


## This Week's "Emergencies"

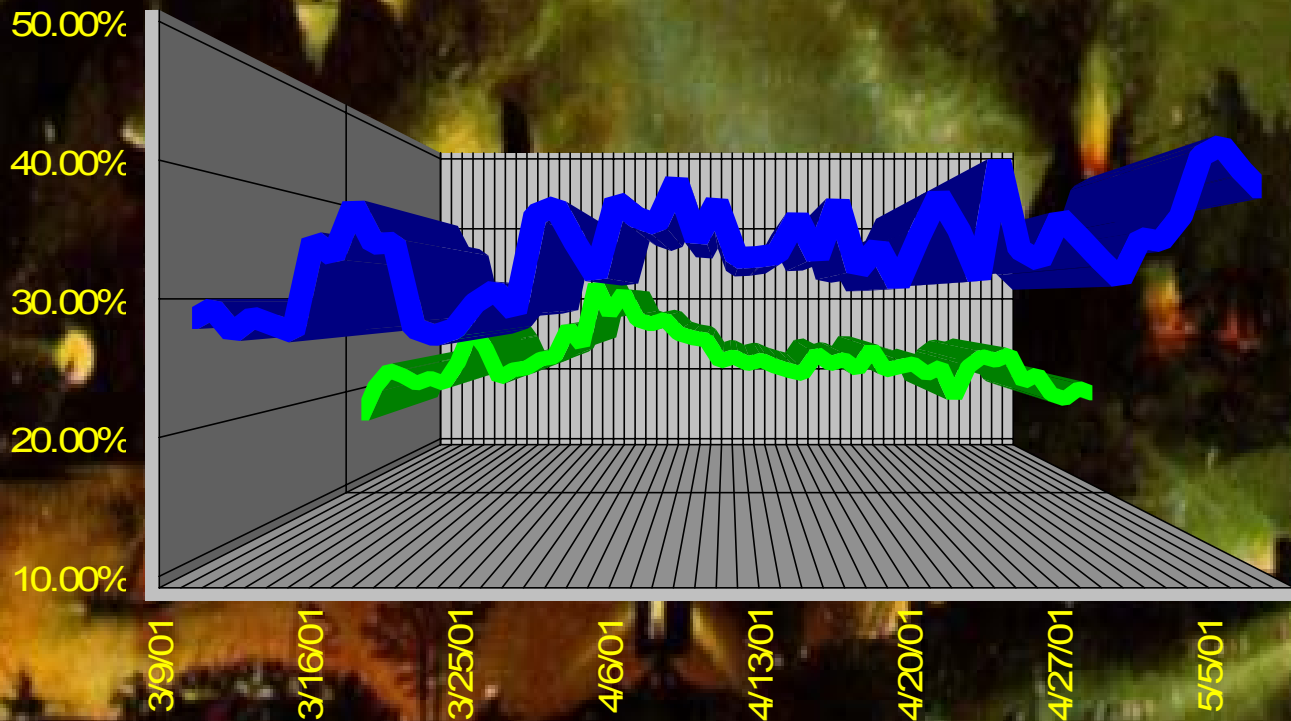
- May is a period of low loads in both electric resistance heating and cooling areas
- The California ISO announced blackouts two days this week
- The problem was not loads (as they announced) but outages



# Loads and Resources



# Relative Outages



■ Big Five ■ All Others



## Villian and Victim



**Professor Hogan:**  
Lucius N. Littauer  
Professor of Public  
Policy and  
Administration at the  
John F. Kennedy School  
of Government, Harvard  
University



**Professor Fessler:**  
Emeritus Professor of  
Law  
University of California  
at Davis School of Law





## Villians and Victims

- Professor Hogan believes (to this day) that markets must be guided and managed by government
- Professor Fessler believes (he has been understandably silent since may 22nd) that prices cannot be measured accurately without Professor Hogan's mechanisms
- Their unfortunate common understanding of the world set California down the path to administered markets, mandated secrecy, inefficiency, and ultimately blackouts



## The Role of Secrecy

- **Secrecy was a central tenet of the California experiment**
- **The logic was that cost recovery required "transparent" pricing (Dan Fessler), "transparent" pricing required administered markets (Bill Hogan), the absence of competitors required secrecy of bids and outcomes**
- **The result was that market manipulation and management failure became obscured by the mantle of competition embracing secrecy**
- **Simply stated, secrecy in areas of central public policy importance is neither required nor desirable**
- **Increased secrecy will bring additional government controls in order to avoid widespread blackouts**



## AB-1890

- **AB-1890 was neither engineered nor inspired -- it was a disaster designed by a committee**
- **The primary plan was the creation of two new state agencies -- the ISO and the PX -- to administer California markets**
- **Customer choice was an early and inadvertent casualty -- eliminated by the formulas designed to recover stranded costs**





# California's System



Prices



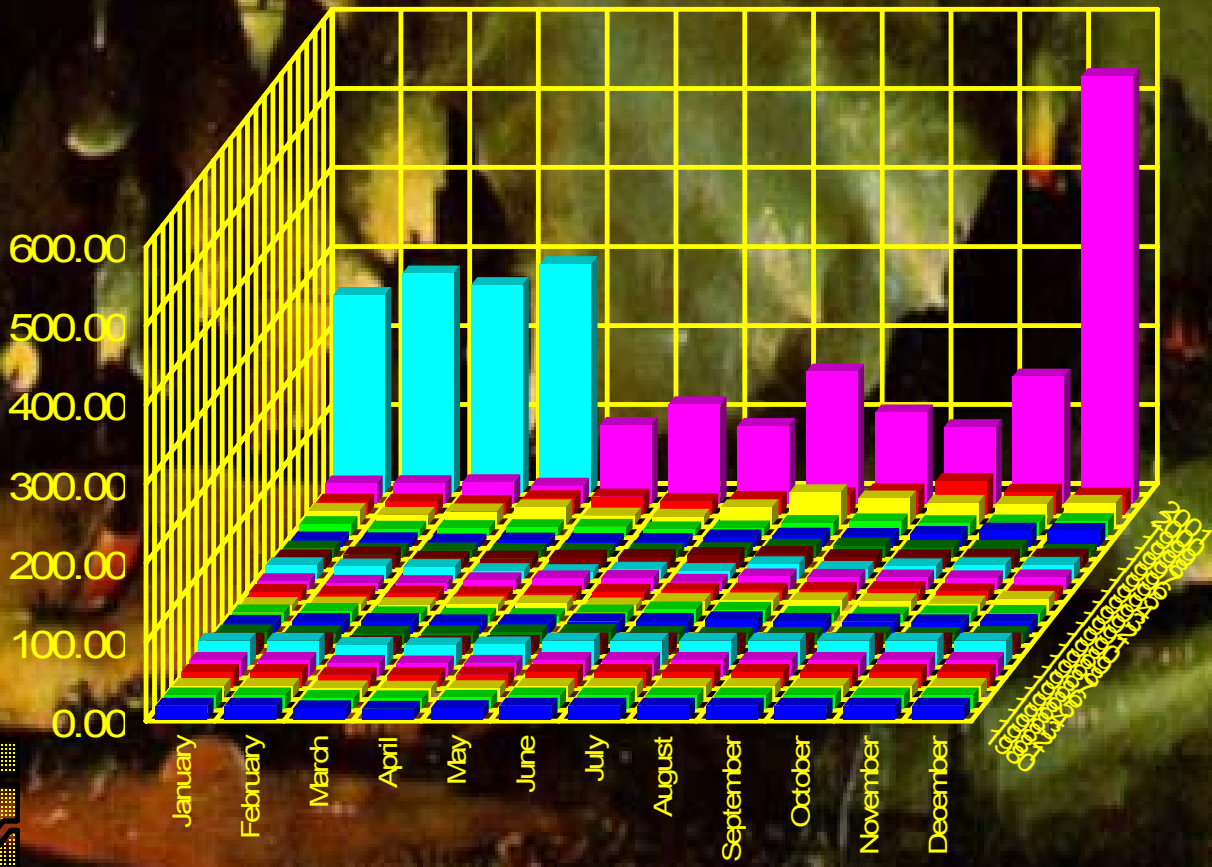
# Twenty Years of Efficient Markets

- Since 1980 the West Coast has enjoyed an active wholesale market
- FERC ratified the market in 1987
- California's deregulatory scheme was a step backwards from competition





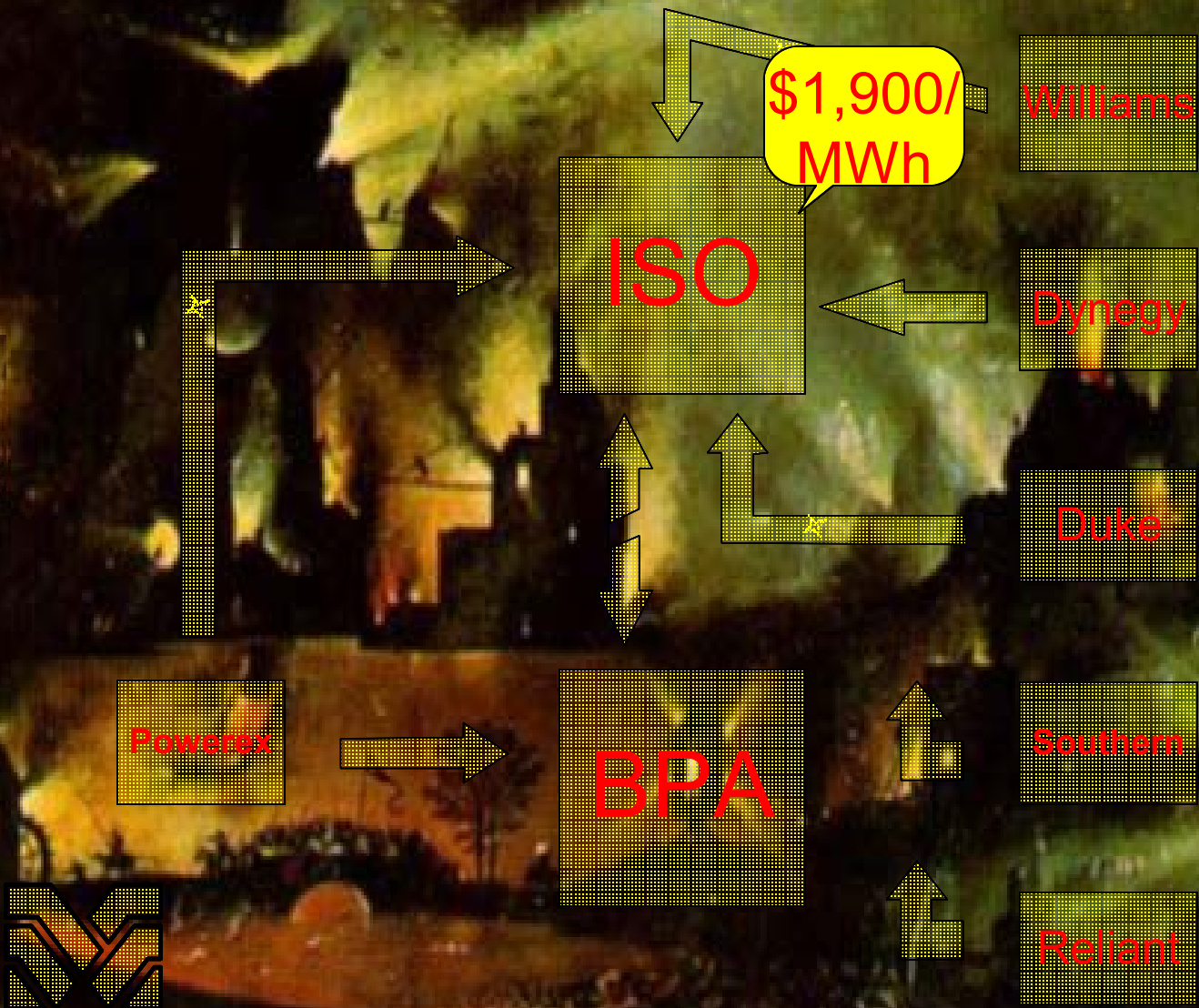
# Twenty Years At Mid-Columbia



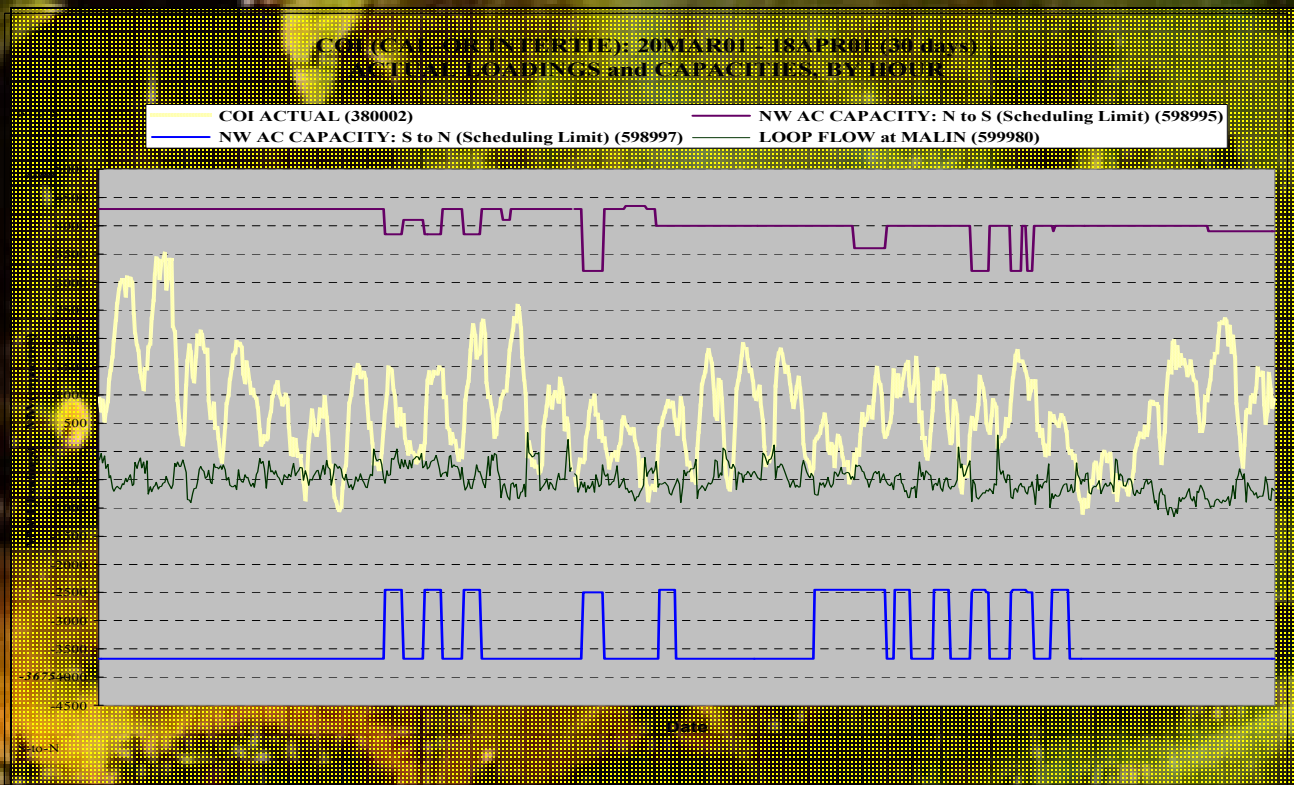
# One Year of Inefficient Markets

- Since May the ISO has taken direct control of markets every few days
- Since November, the ISO has taken direct control almost every day
- The primary "market" if this term can be used is the bilateral daily negotiation between Williams, Dynegy, Reliant, Duke, and Southern
- The regional market has suffered from the massive level of governmental intervention





# Intertie Loading







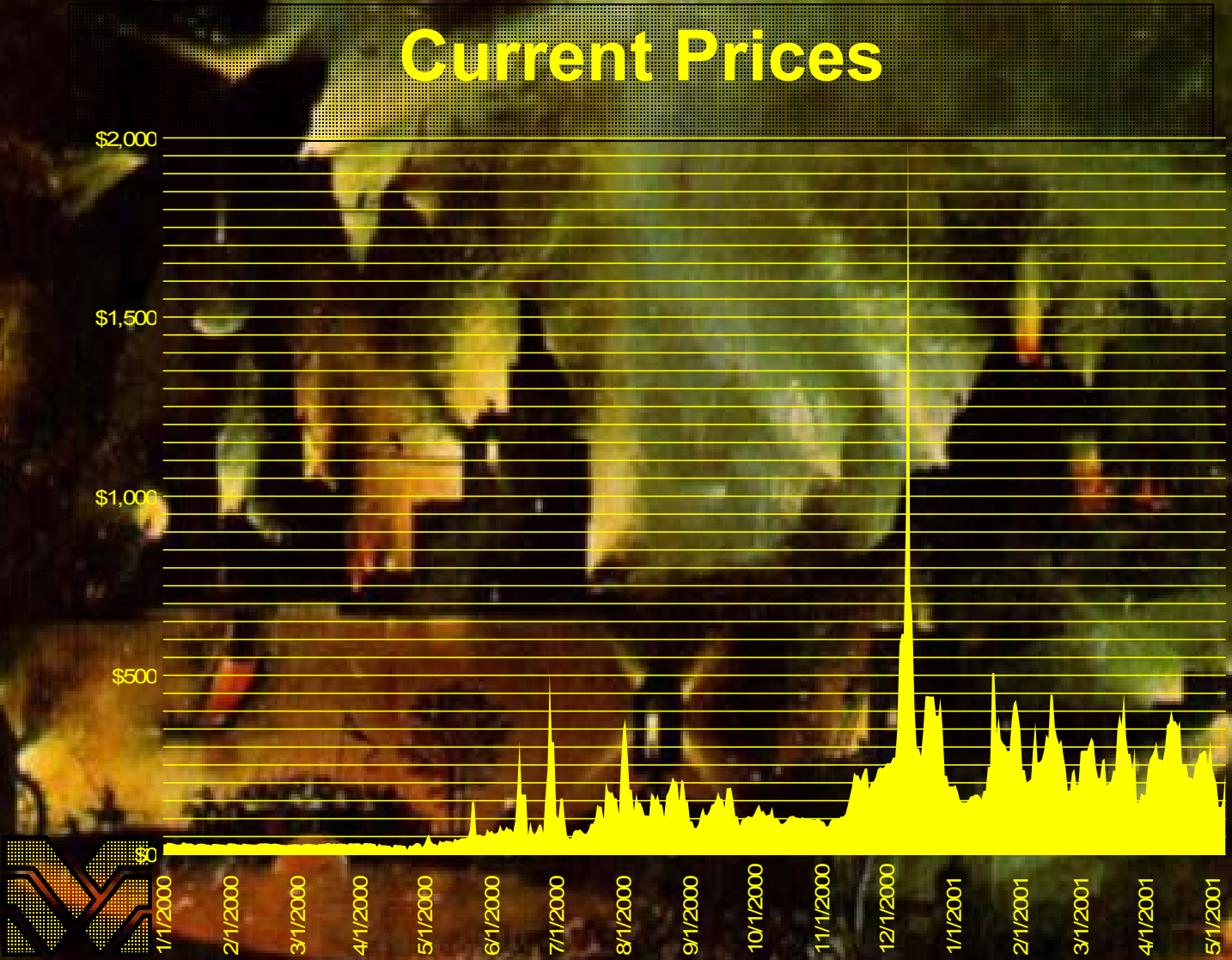
May 22, 2000

- Pricing changed on May 22nd
- There are almost no explanations for the shift

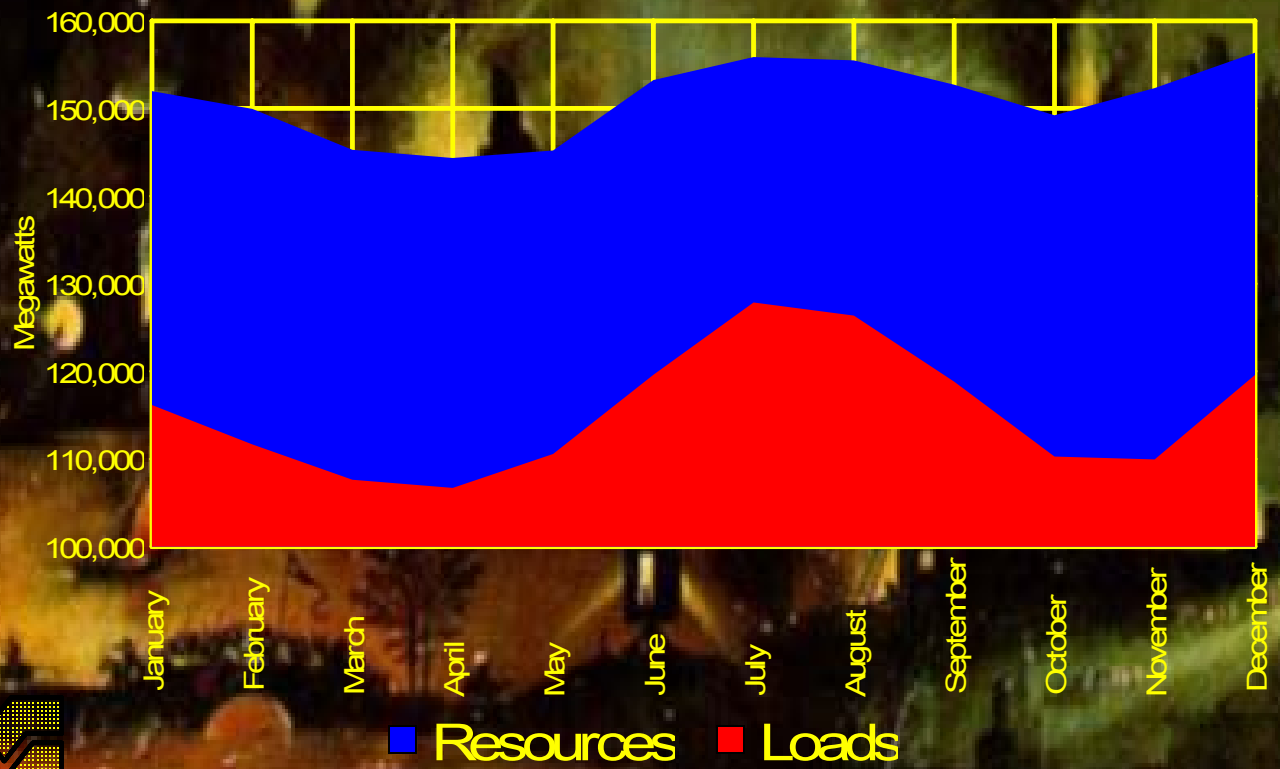




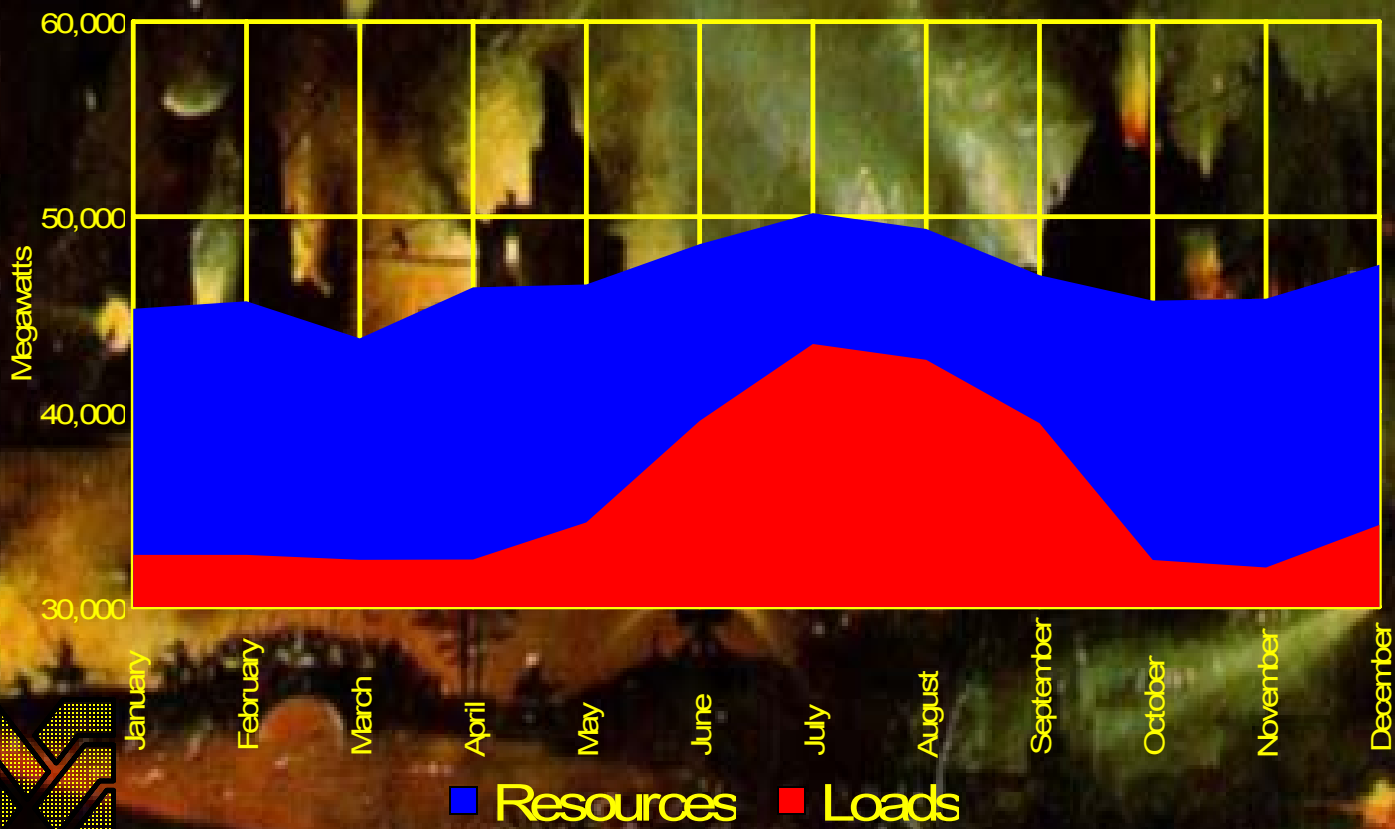
# Current Prices



# WSCC Capacity Balance



# California Capacity Balance



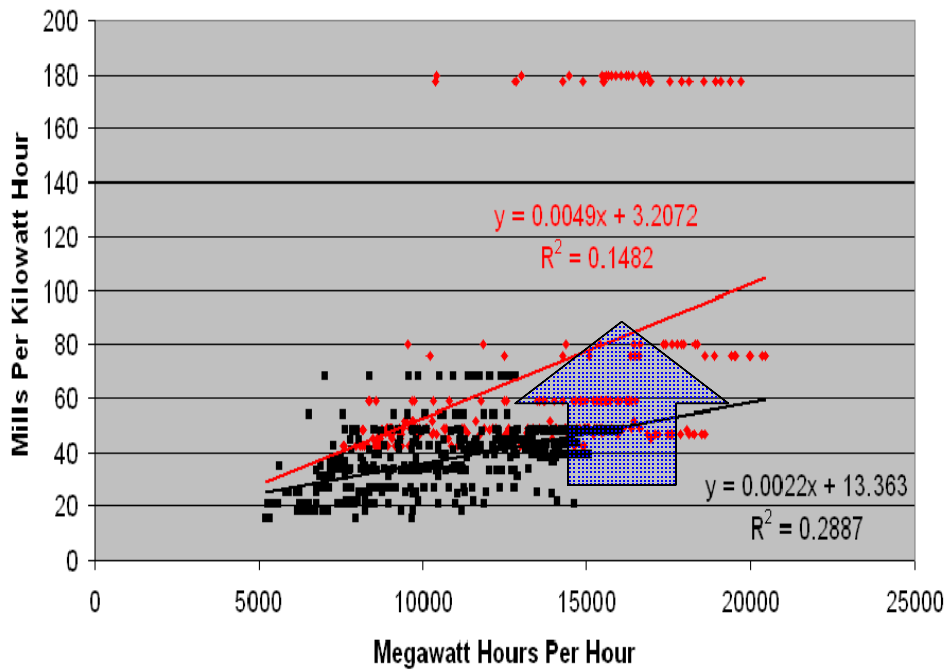
# ISO Capacity Balance





# May Shift

COB Prices Versus Cumulative ISO Generation  
(From EHV Data Supplied By The California ISO) For May 2000



◆ COB May 22-31    ■ COB May 1-21    — Supply Curve (May 1-21)    — Supply Curve (May 22-31)

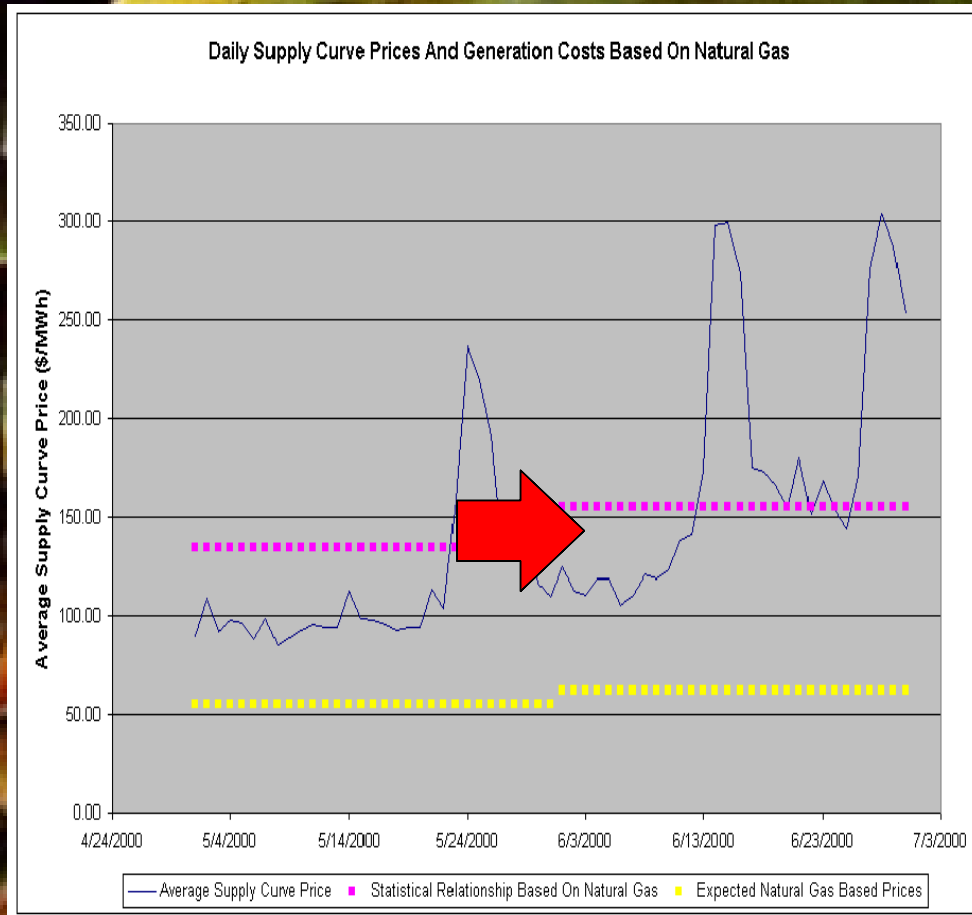


## Market Power

- California's forced divestiture brought five outside owners into the center of their administered market
- These owners have very different incentives than vertically integrated utilities or qualifying facilities



# PX Supply Curves



## California On-Peak

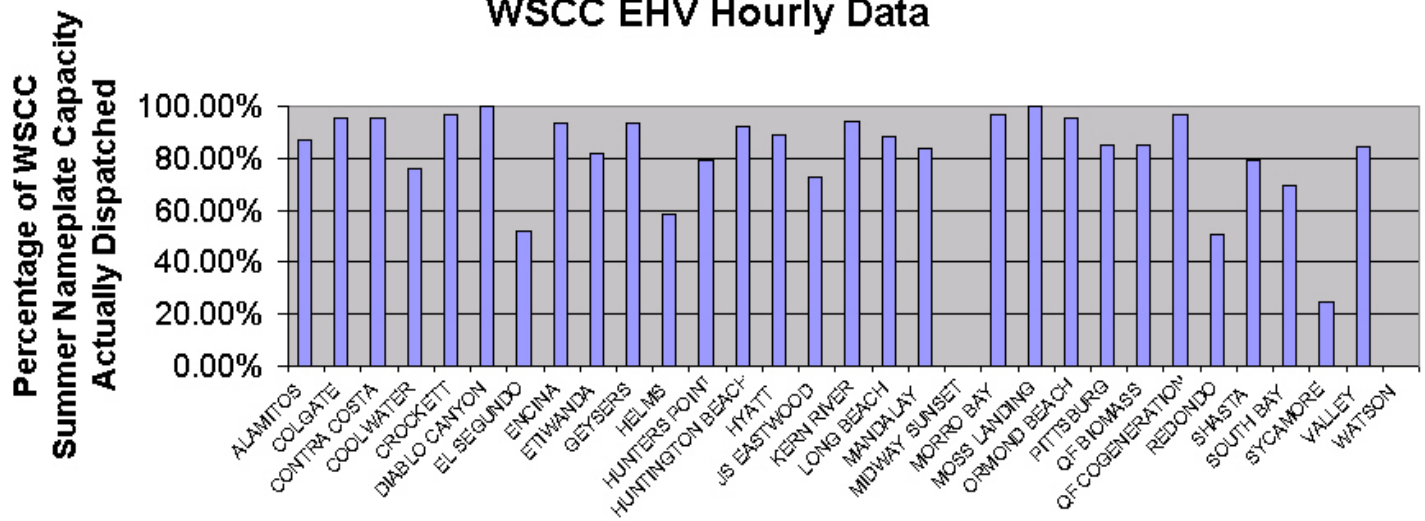
- ISO perceptions of shortage are proving very subjective
- Inadequate ISO methods are securing scarcity in the midst of abundance
- Overall, in the contest between the ISO and the WSCC, the ISO is failing to prove their case





# An ISO Emergency

July 24, 2000 ISO Emergency  
WSCC EHV Hourly Data



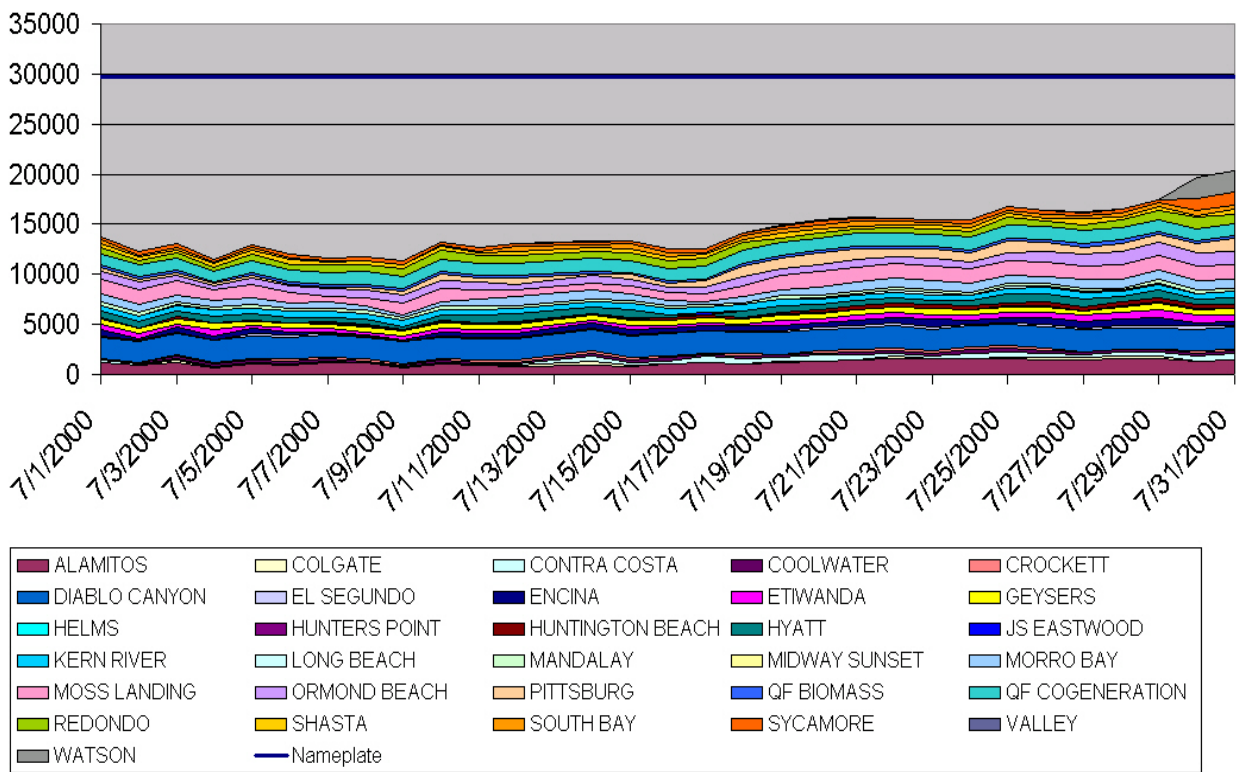
## Inefficient Peak Dispatch

- ISO plants dispatch erratically
- Although total capacity equals nameplate, actual dispatch averages only 50% of nameplate
- ISO dispatch doesn't even approach nameplate during system peaks



# Inefficient Dispatch

July EHV Hourly Plant Data



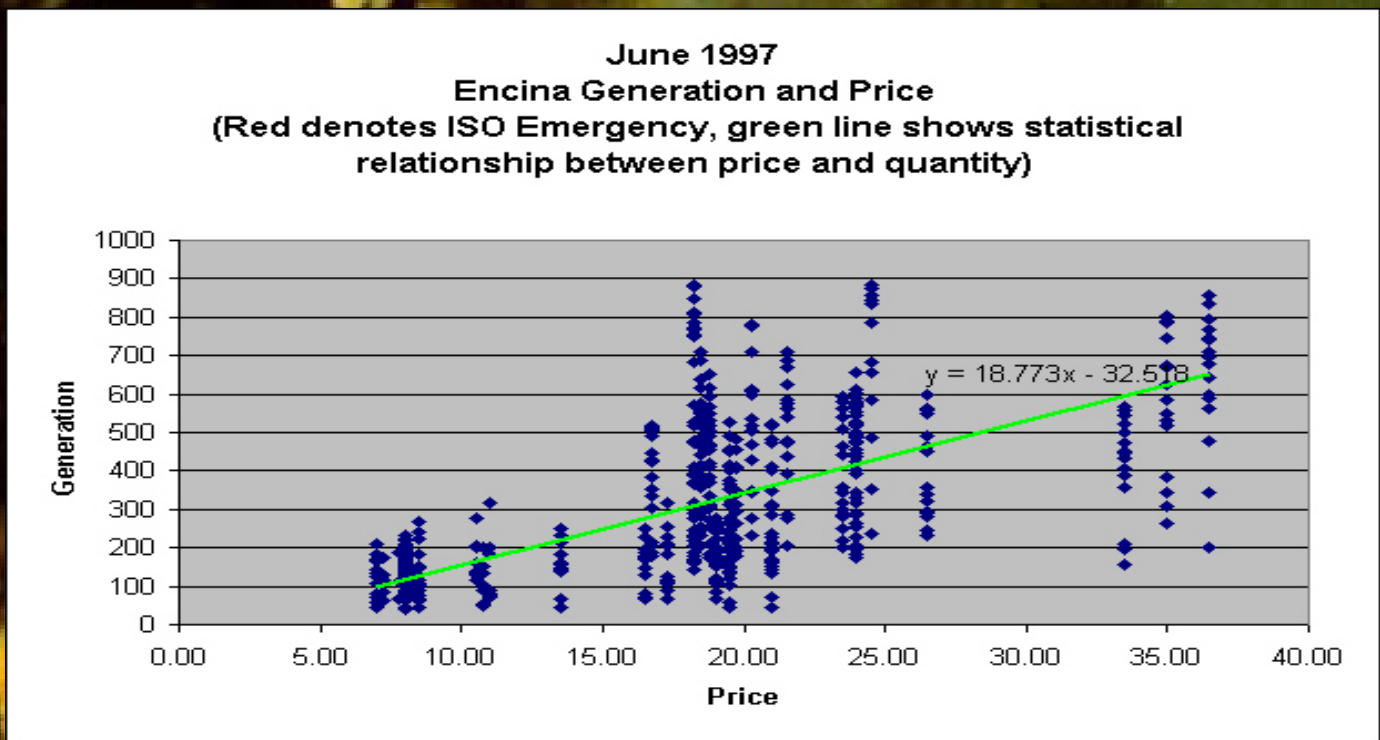
## California Off-Peak

- Hourly investigation of economic dispatch at California "marginal" plants indicate large changes in behavior -- both on-peak and off-peak
- Price responsiveness of dispatch has seemingly diminished dramatically

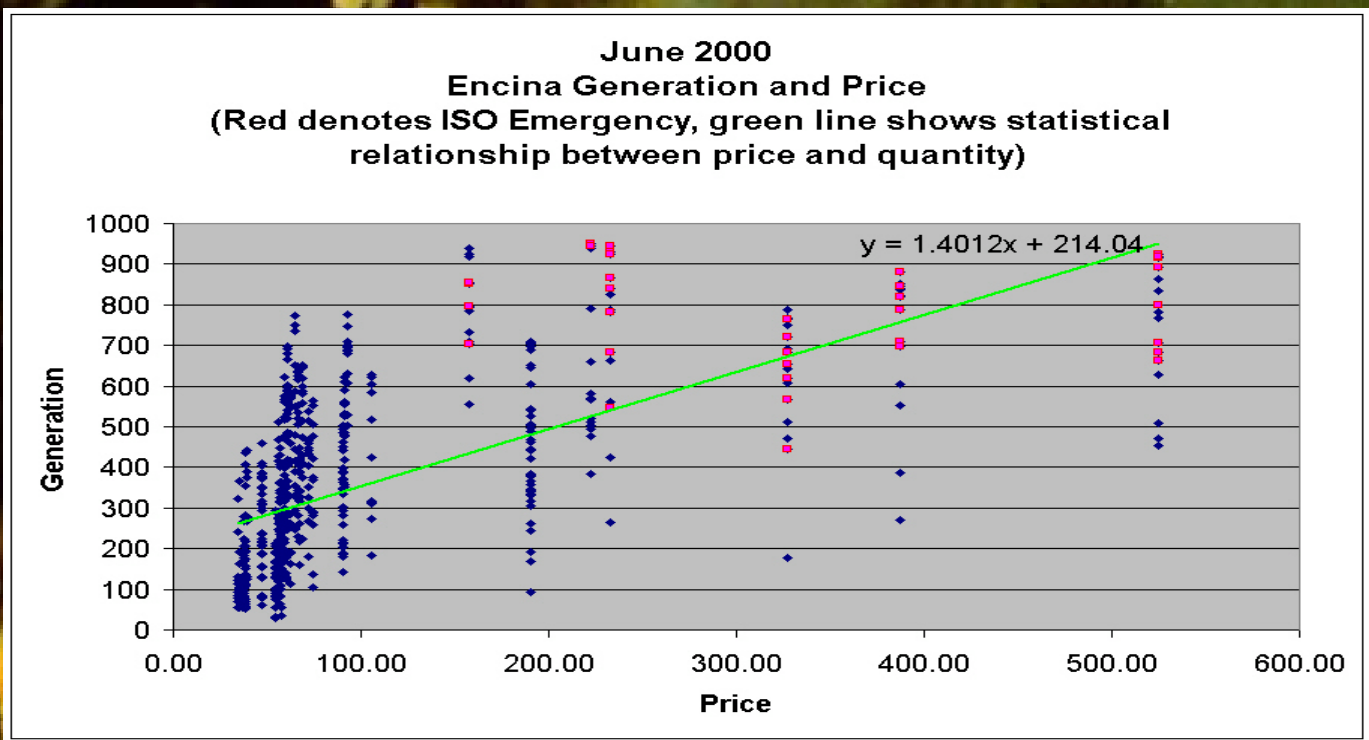




# June 1997: Encina Generation and Price



# June 2000: Encina Generation and Price



## Dispatch By Owner

	MW	%
<b>AES</b>	4,188.00	
Jan-97	495.53	11.83%
Apr-98	(806.49)	-19.26%
May-00	(1,103.57)	-26.35%
<b>Duke</b>	3,325.00	
Jan-97	767.26	23.08%
Apr-98	(333.79)	-10.04%
May-00	(1,106.12)	-33.27%
<b>Dynegy</b>	2,278.00	
Jan-97	247.45	10.86%
Apr-98	(183.56)	-8.06%
May-00	(824.69)	-36.20%
<b>Reliant</b>	3,704.00	
Jan-97	230.67	6.23%
Apr-98	(954.19)	-25.76%
May-00	(1,279.62)	-34.55%
<b>Southern</b>	2,698.00	
Jan-97	371.12	13.76%
Apr-98	(576.90)	-21.38%
May-00	(1,098.28)	-40.71%



## Off-Peak Conclusions

- It now costs the market 13 times as much to raise generation levels as it did in 1997
- Substantial evidence exists for signaling -- change production levels to check the responses of other generators
- Replacing the internet with major generating units as "tom-toms"





## Phase 2

- Since November 15th, California generators have changed their behavior from a form of price based market manipulation to physical manipulation
- Plant outages are "secret" but some plants have publicly admitted a three month planned outage cycle



# EMR Outages

## Western Generating Unit Outages

Current	Begins	Ends	Reason
CAISO units/<250/3671 total planned/unplanned*	NA	NA	
Colstrip #2/330/coal	10-Feb-01	?	unplanned*
Contra Costa #6/339/gas	05-Dec-00	?	maintenance
El Segundo #3/342/gas	29-Jan-01	?	maintenance
Escalante/235/coal	11-Feb-01	13-Feb-01	tube leak*
Etiwanda #4/333/gas	28-Jan-01	?	maintenance
Haynes #4/222/gas	05-Nov-00	Feb-01	maintenance
Haynes #5/341/gas	05-Nov-00	Feb-01	maintenance
Haynes #6/341/gas	05-Nov-00	16-Feb-01	maintenance
Hunter #1/440/coal	25-Nov-00	01-Apr-01	maintenance
Moss Landing #6/739/gas	01-Oct-00	?	maintenance
Navajo #1/750/coal	20-Jan-01	18-Feb-01	maintenance
Pittsburg #1-3/489/gas	10-Nov-00	?	maintenance
Redondo Beach #8/495/gas	11-Feb-01	?	unplanned*
San Juan #2/350/coal	10-Feb-01	14-Feb-01	tube leak*
San Onofre #3/1080/nuclear	02-Jan-01	20-Feb-01	unplanned



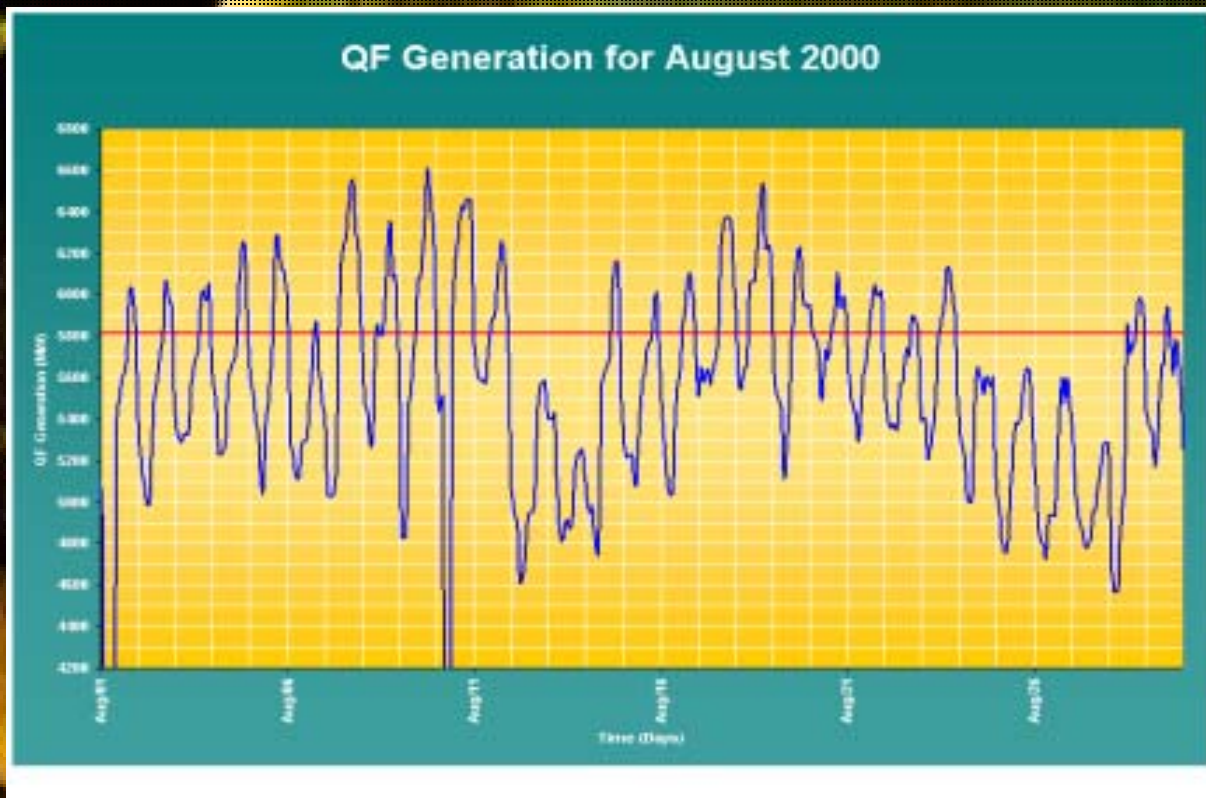
## Inefficient Administered Markets

- The ISO is undertrained, undermanned, and inexperienced in its current role
- ISO dispatchers neither understand hydro (25% of the state's resources) nor have direct control over dispatch
- The ISO has no control over QF dispatch
- Utilities have difficulties with ISO rules
- Transmission utilization is erratic





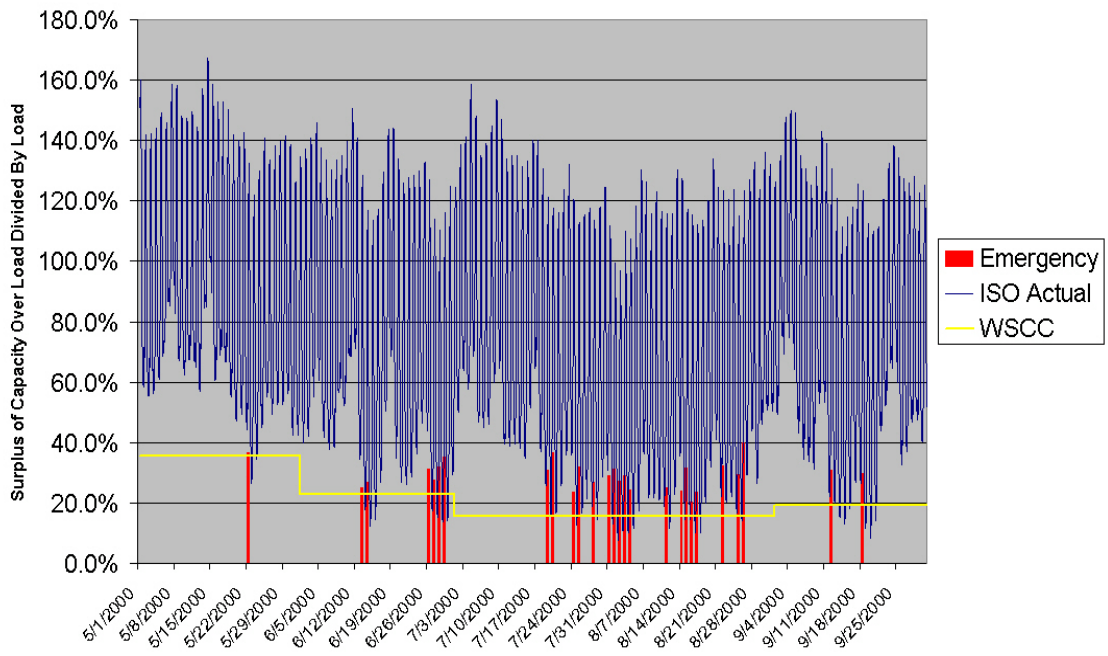
# Missing QF Generation





# Actual ISO Capacity Margins

Actual ISO Capacity Reserve Margins Compared To WSCC Summer Adequacy Report Forecasts



## Solutions?

- Refunds
  - The ISO DMA has recently asked for \$5.5 billion
- Elimination of the daily capacity auction
- Direct dispatch of hydro and QFs
- Short term price caps
- Open information

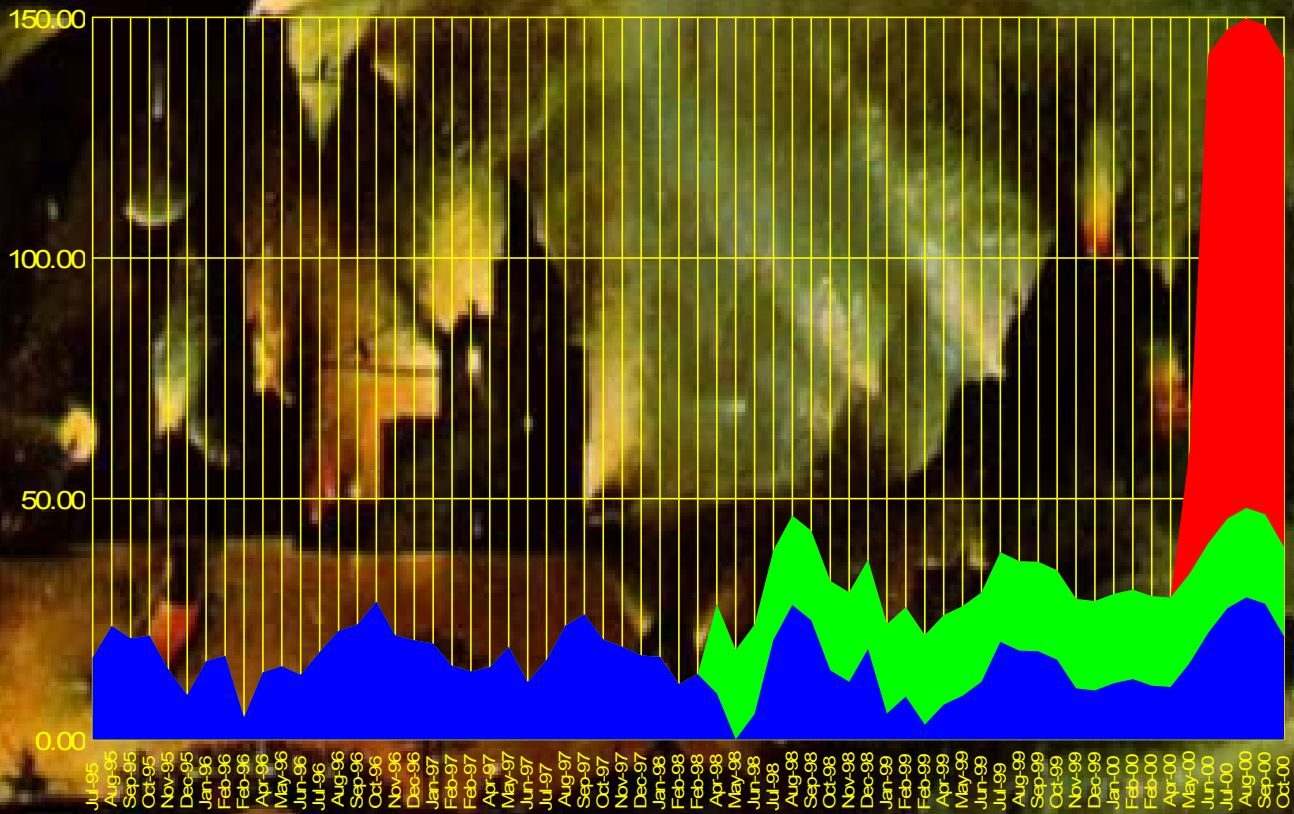


## Calculated Refunds

- **On-Peak: 101.6 mills +/- 23.2 Mills**
- **Off-Peak: 48.4 mills +/- 11.6 Mills**
- **Refunds appropriate from May 22nd through October 31st**
- **Additional data will continue to refine estimates on a month by month basis**



# On-Peak Price Impacts

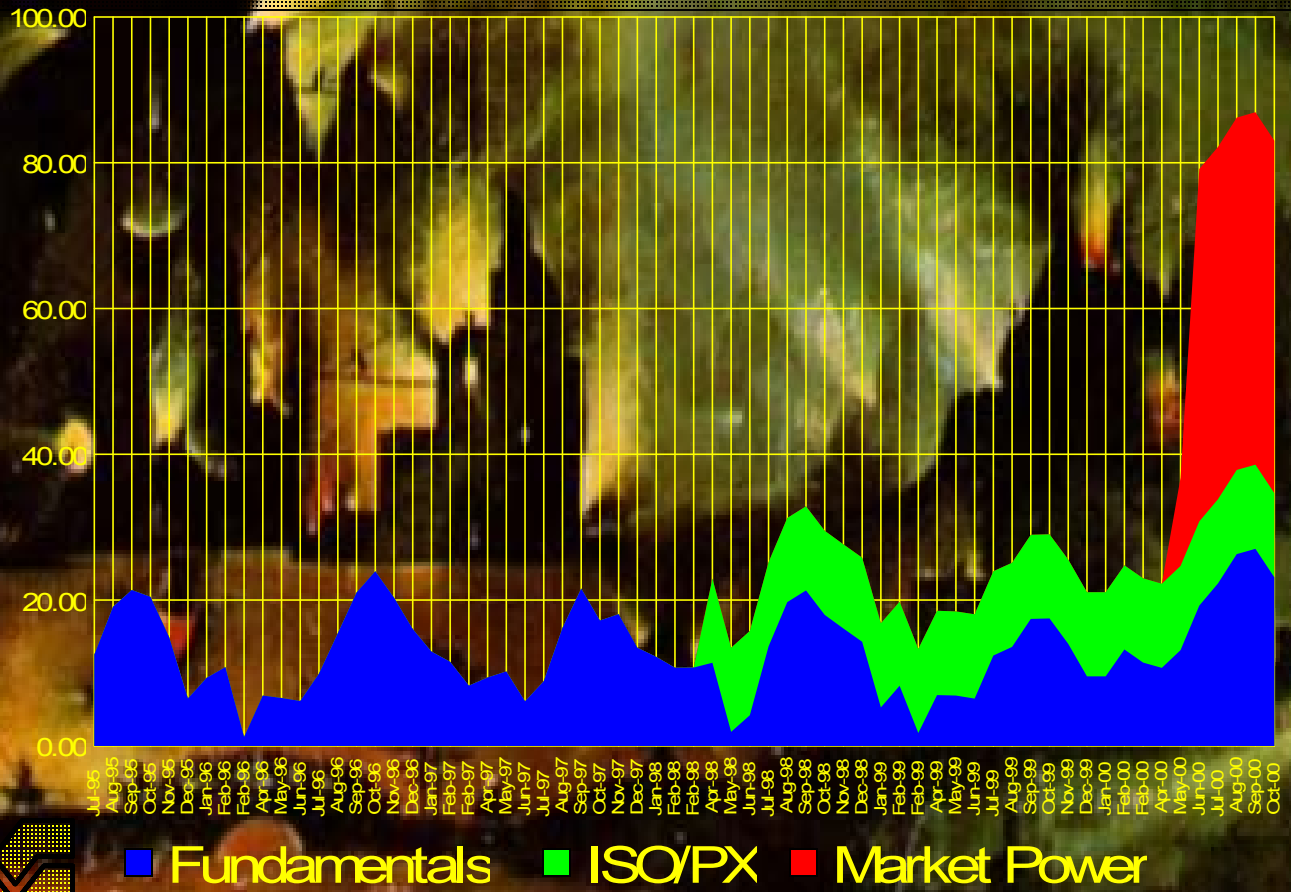


■ Fundamentals ■ ISO/PX ■ Market Power





# Off-Peak Price Impacts



**Fundamentals**   **ISO/PX**   **Market Power**



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