



Factors Driving The Market

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Figure 28 THE WORLD MODEL

Factors Driving The Market

- 1999 -- the year competition began to yield to regulation
- (Un) Rewriting history
- Memes -- who, what, when, where, why
- The Limits To Growth
- Impacts on the market
- Impacts on our collective pocket books

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1999 - The Year Of The Regulator

- For the first time since 1980, we are seeing a massive governmental intervention in the power markets
- In a sense this is inevitable, since governmental intervention is a very potent addictive drug
- In the north, BPA has announced its "subscription" policy — using its sheer bulk to set long term prices for the next five years
- In the south, the failing California "deregulation" has raised prices (and volatility) as a form of social engineering has taken hold

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(Un)Rewriting History

- North America's spot electric markets started in 1981 with an inadvertent decision by Earl Gjelde to eliminate non-firm allocations as part of the Regional Power Act implementation
- The first decade of experience with spot markets was good. Only Pacific, PGE, and BPA realized that a market existed. Pacific and PGE "packaged" non-firm for extra-regional sales
- California launched many initiatives to rein in the market — asking FERC to place cost based price caps on "dump hydro"

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Recent History

- Industrials in the Pacific Northwest began to replace contract purchases with spot market supplies
- Dow Jones discovered the vast market at COB (1995)
- Nymex issued the wrong contracts at COB
- California industrials finally noticed the 140% rate differential between Oregon and California
- Senator Pease proposed pleasing everyone with S.B. 1890
- April Fools, 1998 – the PX and ISO shamble into creation

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Current Events

- BPA formally announces that it will "allocate" "scarce" energy to its customers for the next five years
- Senator Peace proposes to make the ISO and PX state agencies
- Real market prices begin to react to BPA's announcement

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What is a meme?

meme /meem/ /n./ [coined by analogy with 'gene', by Richard Dawkins] An idea considered as a {replicator}, esp. with the connotation that memes parasitize people into propagating them much as viruses do. Used esp. in the phrase 'meme complex' denoting a group of mutually supporting memes that form an organized belief system, such as a religion. This lexicon is an (epidemiological) vector of the 'hacker subculture' meme complex; each entry might be considered a meme. However, 'meme' is often misused to mean 'meme complex'. Use of the term connotes acceptance of the idea that in humans (and presumably other tool- and language-using sophonts) cultural evolution by selection of adaptive ideas has superseded biological evolution by selection of hereditary traits.

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- A meme is:
 - A persuasive idea
 - Usually has a good graphic associated with it
 - Is generally considered an abstraction of a concept so complex that one can be honorably ignorant of the underlying facts
 - Of the three, the most important factor is the allowance of credible incomprehension

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Why are memes important?

- Markets often operate on memes
- Holland's tulip market once dominated the financial base of Europe (this was a very long time ago -- don't buy any tulip futures)
- Amazon.com is now worth more than Barnes and Noble -- even without any visible or expected profit
- Competition is a meme, but, tragically, not as seductive a meme as governmental intervention
- Memes allow judgment without facts -- they are very efficient

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The Limits To Growth

- In 1972, the Club of Rome announced that the world was coming to an end
 - This idea was persuasive, had excellent graphics, and was difficult to fully grasp
 - The computer models (remember how authoritative that striped paper used to be?) issued forth in a series of books including the "Limits To Growth" and "World Dynamics"
- The basic idea was that resources are finite, population always increases and large scale economic collapse is inevitable

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Vanishing Resources

Table 4 NONRENEWABLE NATURAL RESOURCES

1	2	3	4	5	6
Resource	Known Global Reserves *	Static Index (years) "	Projected Rate of Growth (% per Year) "	Exponential Index (years) "	Exponential Index Calculated Using 3 Times Known Reserves (years) "
Aluminum	1.17×10^{10} tons '	100	7.7 6.4 5.1	31	55
Chromium	7.75×10^8 tons	420	3.3 2.6 2.0	95	154
Coal	5×10^{12} tons	2300	5.3 4.1 3.0 "	111	150
Cobalt	4.8×10^9 lbs	110	2.0 1.5 1.0	60	148
Copper	308×10^9 tons	36	5.8 4.6 3.4	21	48
Gold	353×10^6 troy oz	11	4.8 4.1 3.4 '	9	29
Iron	1×10^{11} tons	240	2.3 1.8 1.3	93	173
Lead	91×10^9 tons	26	2.4 2.0 1.7	21	64
Manganese	8×10^9 tons	97	3.5 2.9 2.4	46	94
Mercury	3.34×10^6 flasks	13	3.1 2.6 2.2	13	41

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Authoritative Diagrams

Figure 35 WORLD MODEL STANDARD RUN

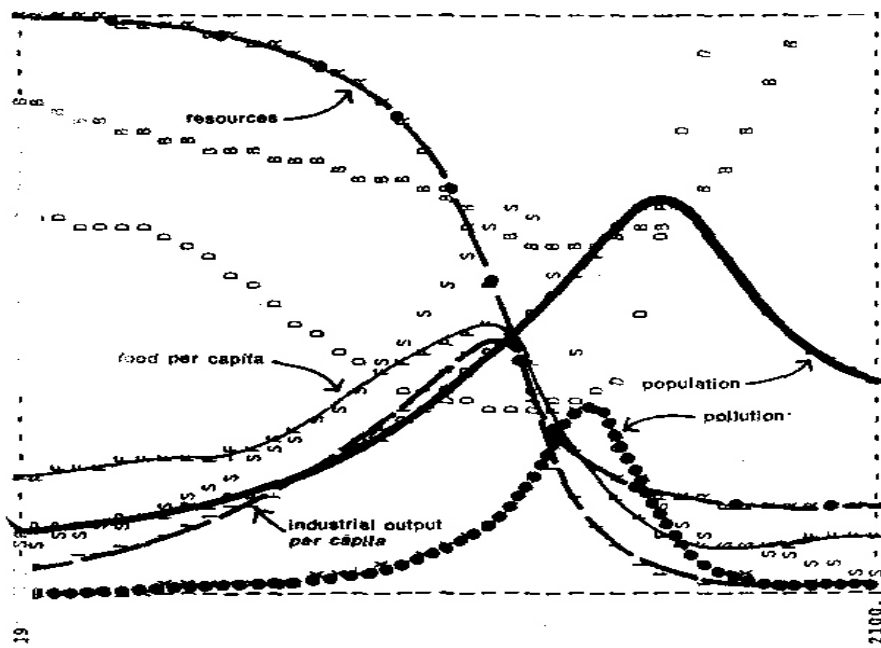


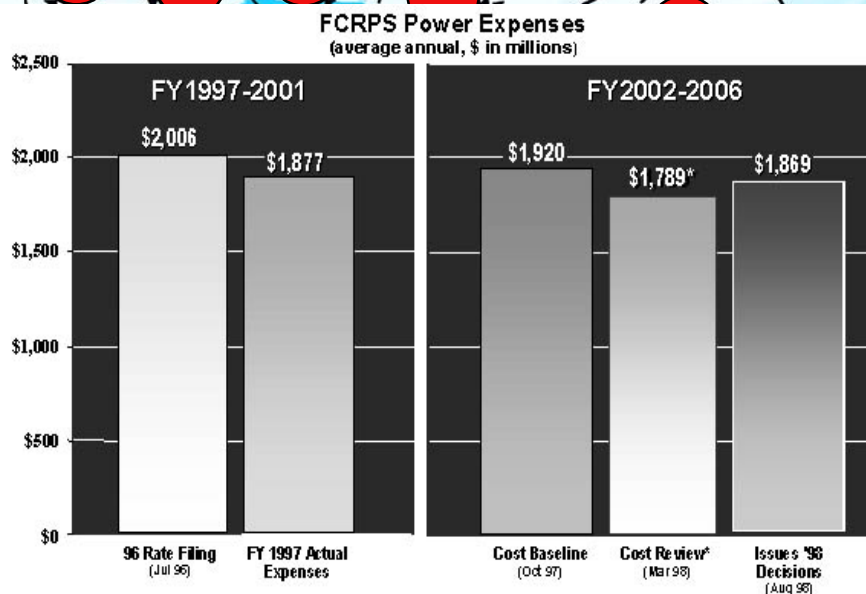
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Bonneville Subscription

- BPA has recently set prices in the Pacific Northwest to 23 mills
 - BPA has the right to do this -- they are the largest player in the market
 - BPA's approach is actually quite creative -- they have announced that their valuable energy will soon be gone and have created an impression of artificial scarcity
- The fundamentals behind their estimates are roughly based on BPA's costs

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BPA Costs



*Excludes the \$6 million in Corps of Engineers Bureau of Reclamation revenue increases recommended by the Cost Review panel recommendation #5.

- BP A entered Cost Review with an expense baseline for FYs 2002-2006 that was \$36 million lower on the power side than expenses in current rates
- Cost Review recommended reducing this power baseline by an additional \$131 million (with an additional \$15 million in COE/BOR revenues)
- BP A plans to implement the Cost Review recommendations in a manner that would reduce the baseline by \$125 million
- 2002-2006 changes to the power baseline outside the Cost Review include the cost of GTAs, as well as adjustments to interbusiness line and PNCA interchange expenses
- Some components of power expenses will change in rates development process this fall. Rates will also include a cash margin (planned net revenues) for risk management

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Future Focus

- BPA's analytics are actually quite primitive
- BPA's numbers are based on a graphic designed by BPA's public affairs department -- the infamous "Future Focus"
- Although it isn't generally known -- each chart is different -- since BPA's publications staff actually makes up the numbers based on the artistic requirements of the chart

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Future Focus

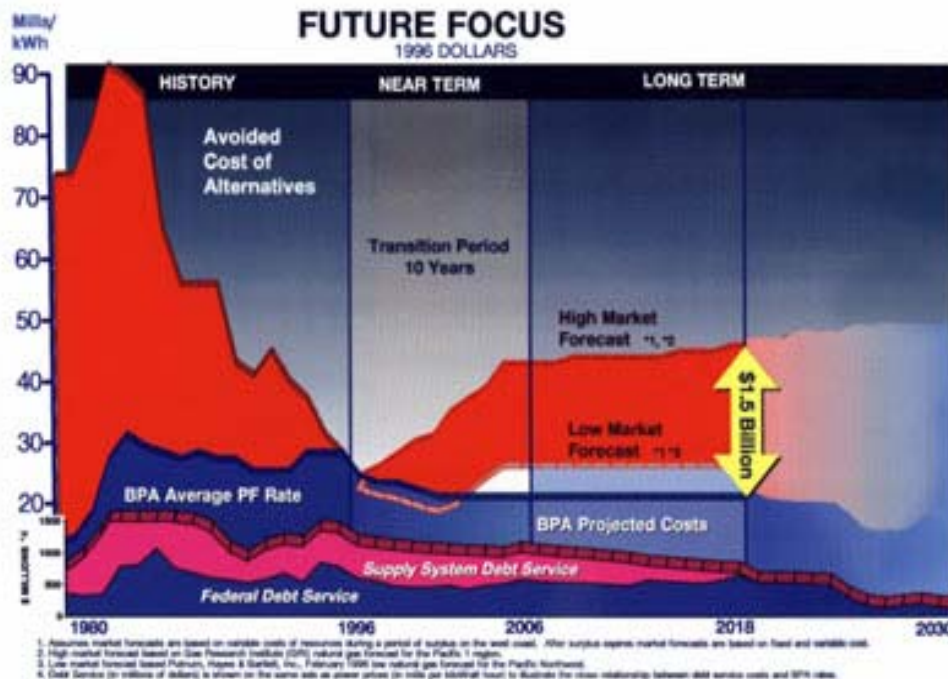


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BPA's Technical Background

- BPA has largely eliminated their in house analytical capability over the past few years
- BPA's leading "secret" model is now a small spreadsheet that proves that the price of long term spot power is a bit higher than the cost of a Frame 7F
- In practice, it tends to get different answers depending on the number of times the calf button is pressed - a minor disadvantage if precision is the goal

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California's System

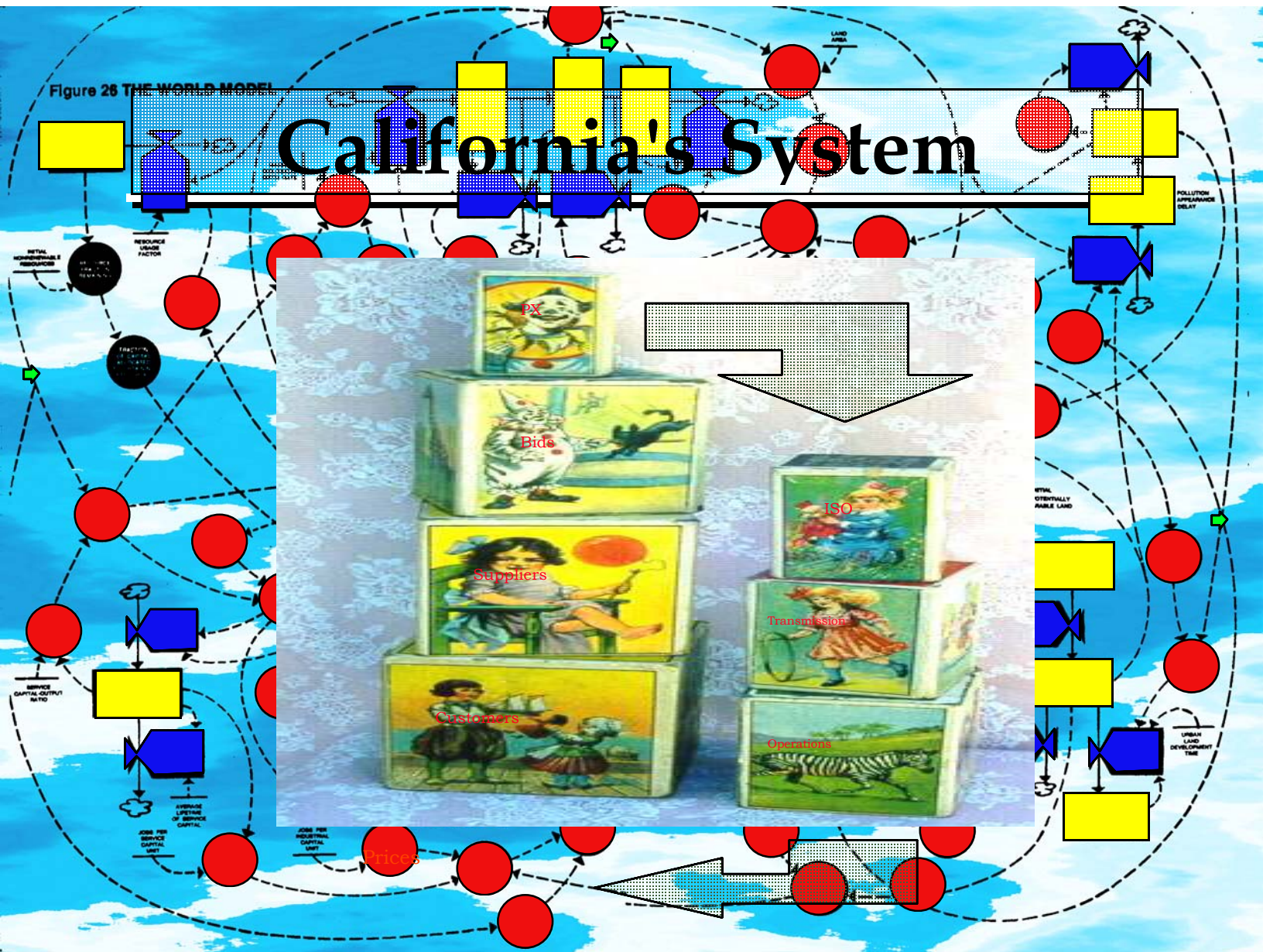


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PX/ISO Operations

PX Day Ahead vs. ISO Hourly Ex-Post Imbalance Energy Prices
(see note 1)

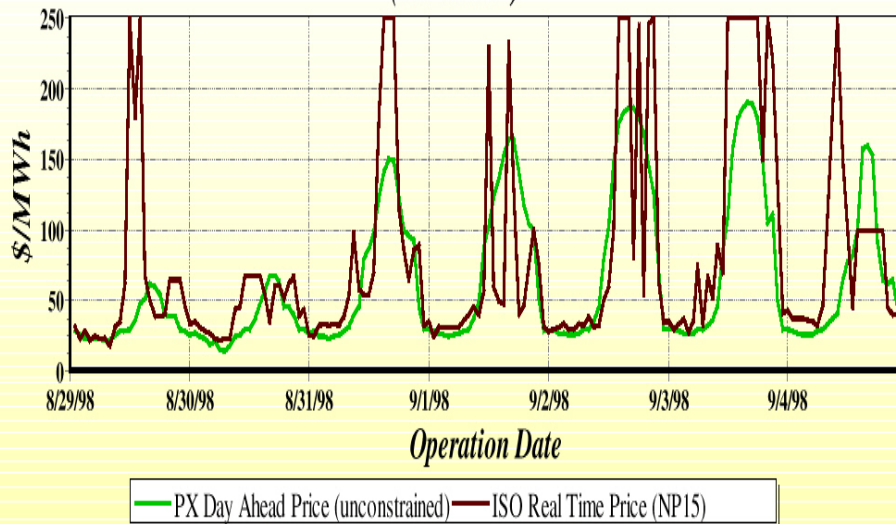


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What Happened?

- The simple fact is that there were no major problems in recent months
- Hydro was a bit less than normal
- There were no major plant outages
- There were no transmission outages
- Loads were higher, but not markedly so
- California's PX has had an enormous impact in two ways:
 - Terms of trade have turned towards the Pacific Northwest as the theorists in California have attempted to offset market power by California's big three utilities
 - The PX simply doesn't work very well

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Spot Prices

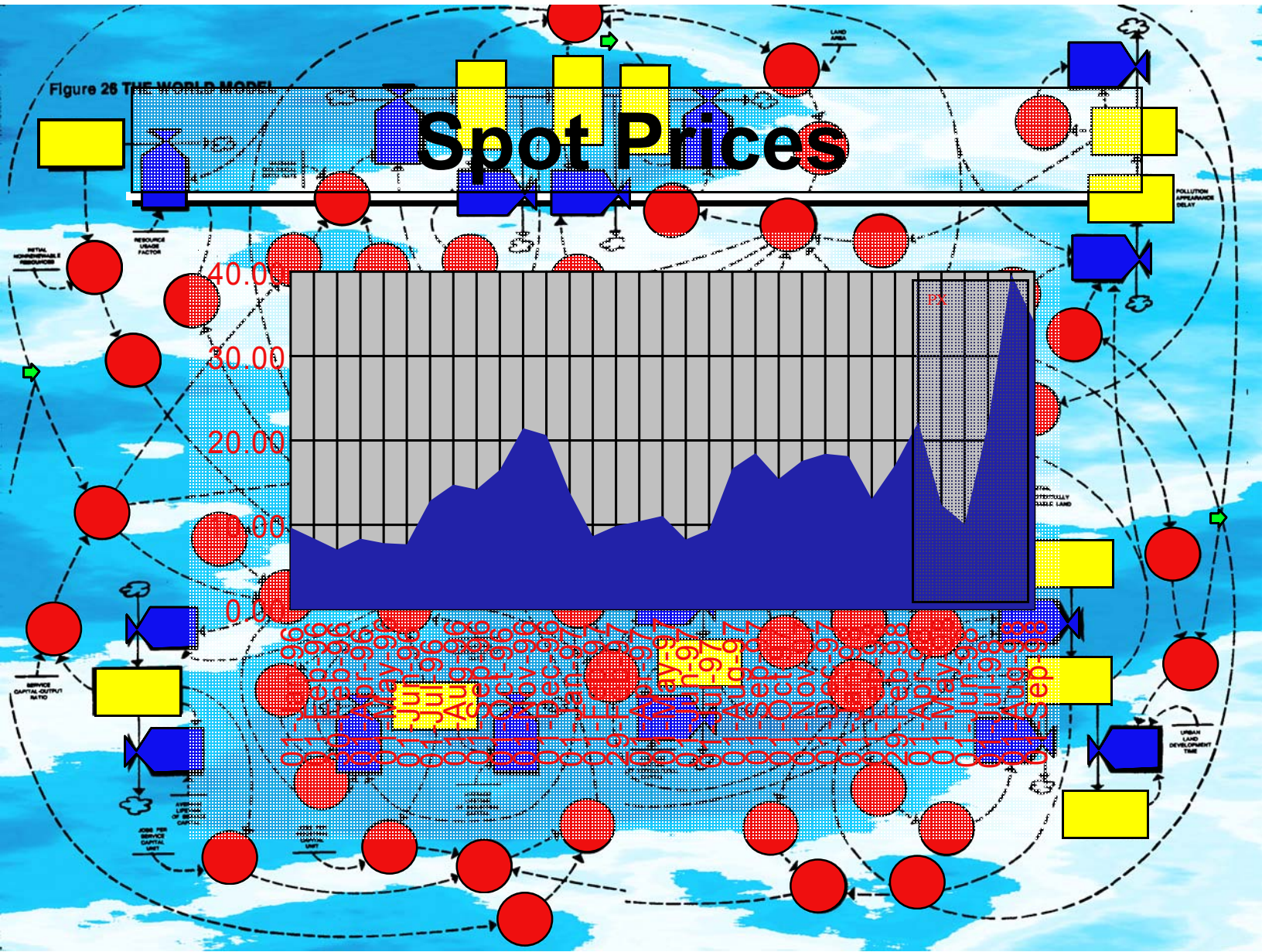
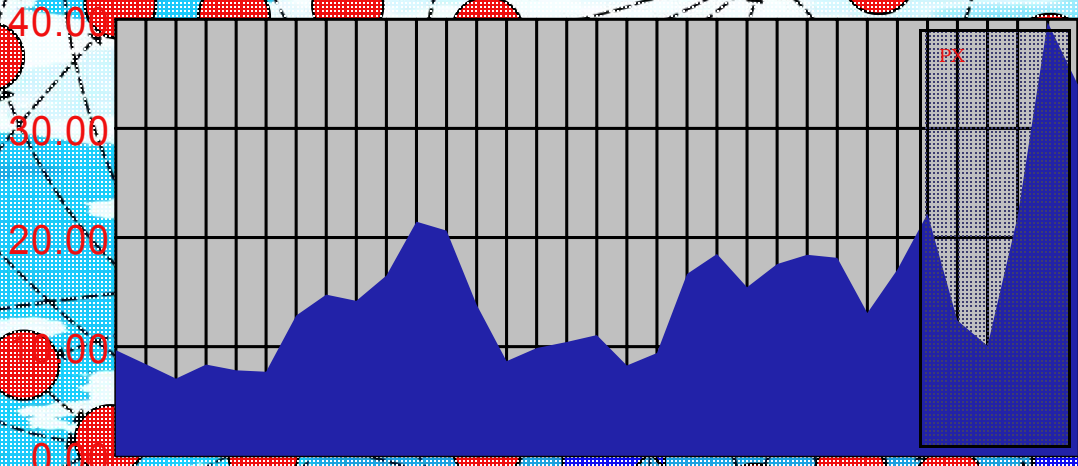


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Updating For The PX

- Our current results indicate that the California PX has added 9.26 mills to on-peak prices and 4.82 mills to off-peak prices
- Close examination indicates that the impacts are very dependent on problems within the PX itself
- As a working hypothesis, we expect that PX excursions will only occur during high load months in California
- This should mean that November through January will not be affected by PX problems

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Volatility And The PX/ISO

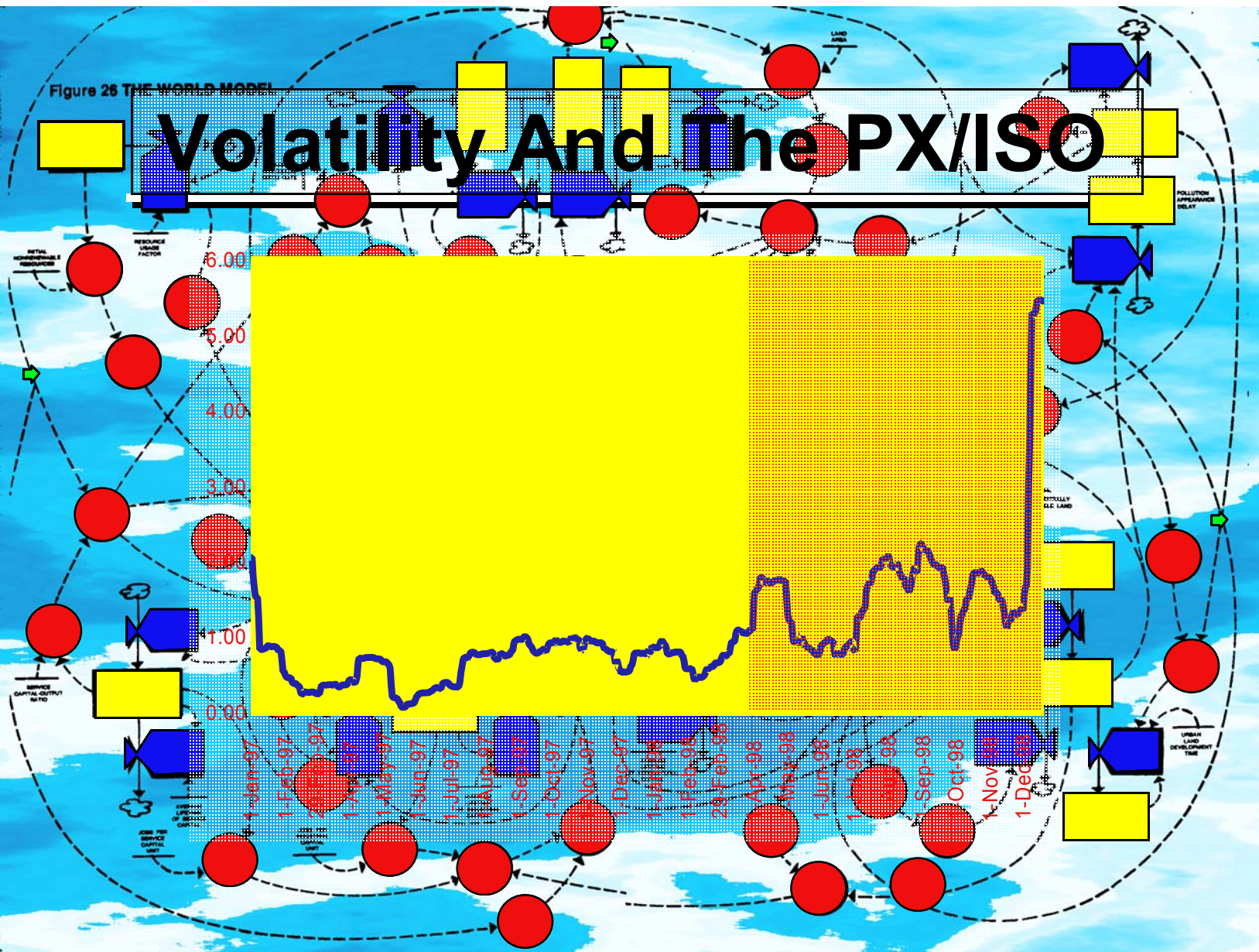


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Market Impacts

- BPA's job is to encourage a perception of deficit against the reality of a continuing surplus
- We suspect we will see an "evolution in action" process where gullible publics will pay more than careful shoppers
- Regardless, BPA's pricing setting will be the ceiling in the immediate future -- not the floor
- PX/ISO excursions will likely continue
- Spot market volatility has been significantly increased by the PX/ISO

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Recommendations

- PX/ISO insurance is a necessity
- Unfortunately, NYMEX still hasn't figured out it is selling the wrong product
- Market forecasts by interested parties are dangerous, at best
- Ask around before you take BPA's offer
- Call us – we have clients who will be glad to beat the "conscription" bid
- Buy slow – sell fast
- facts often defeat the most persuasive illusions

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