Market Based Electric Rates:

Can the Dream Survive Reality?
&
How Can a State Swim In Such Seas?

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Yesterday & Tomorrow

- EarlyTwentieth Century
  - Just and Reasonable Rates
    - PUCs retail: 90-98% of total
    - FERC wholesale: 2-10% of total
- Mid- Twentieth Century
  - *SEC - rules, transparency, enforcement*
    - *2 dozen utilities broken into 200 companies*
  - One of History's Greatest Flows of Capital
  - "The fastest, cheapest, wiring of any continent"
- 1995 ----> ???
  - Market-Based Rates replace Just and Reasonable Rates
    - FERC wholesale: 25-50% of total: how much more?

Deregulation As Theology

- Theology:
- markets are good, regulation is bad

- vs.

- Pragmatism
- Justice Breyer:
  "Regulation & Its Reform"--
  Sector by sector regulatory fit and misfit

Faith Meets Reality

- **Faith:**
- **"Reliability is a given" (ELCON 1995)**

  Predicted Calif Savings: $ 2 Billion/year
- **FERC (ICF) 2002**

  Predicted U.S. Savings: 2-4 per cent

- **Reality:**
- **"Reliability is a constraint" (Calif 2001)**

  Actual Calif Payments: $9 Billion becomes $13 Billion then almost $30 Billion/year

*The Vision **FOR** Wholesale Markets*

Energy Clearing Prices & Spot Markets for one fourth to half of total electric load (New England 2001 avg. 35.6%)

- Wholesale trading efficiencies equal to 2-4% reduction in the cost of delivered power (FERC/ICF 2001-02)
- Incentives for ***new*** technology ???

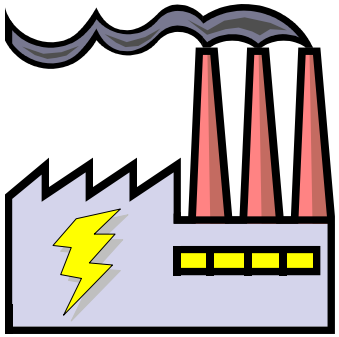
Electric Realities – Key Constraints

- Immediacy of load balancing (low storage)
- Significance (magnitude AND criticality)
- Inter-relatedness / Commonality
  - deficiency (including physical or economic withholding) of one supplier harms its customers AND others
- High Entry Barriers: Access to Capital Vital
- High Externalities
- Terrible Demand Response
  - Real-Time Feedback Pricing Doesn't Work Now – Can It Ever ?
    - A Market without demand curve is not a Market

U.S. Air Pollution: CO2 & NOx

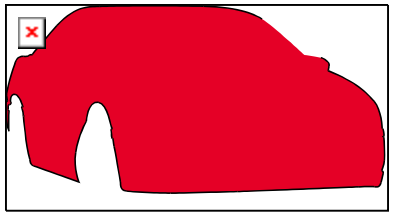
More Than 1/3

3,000
Power Plants
(50% from 100 plants)



About 1/3

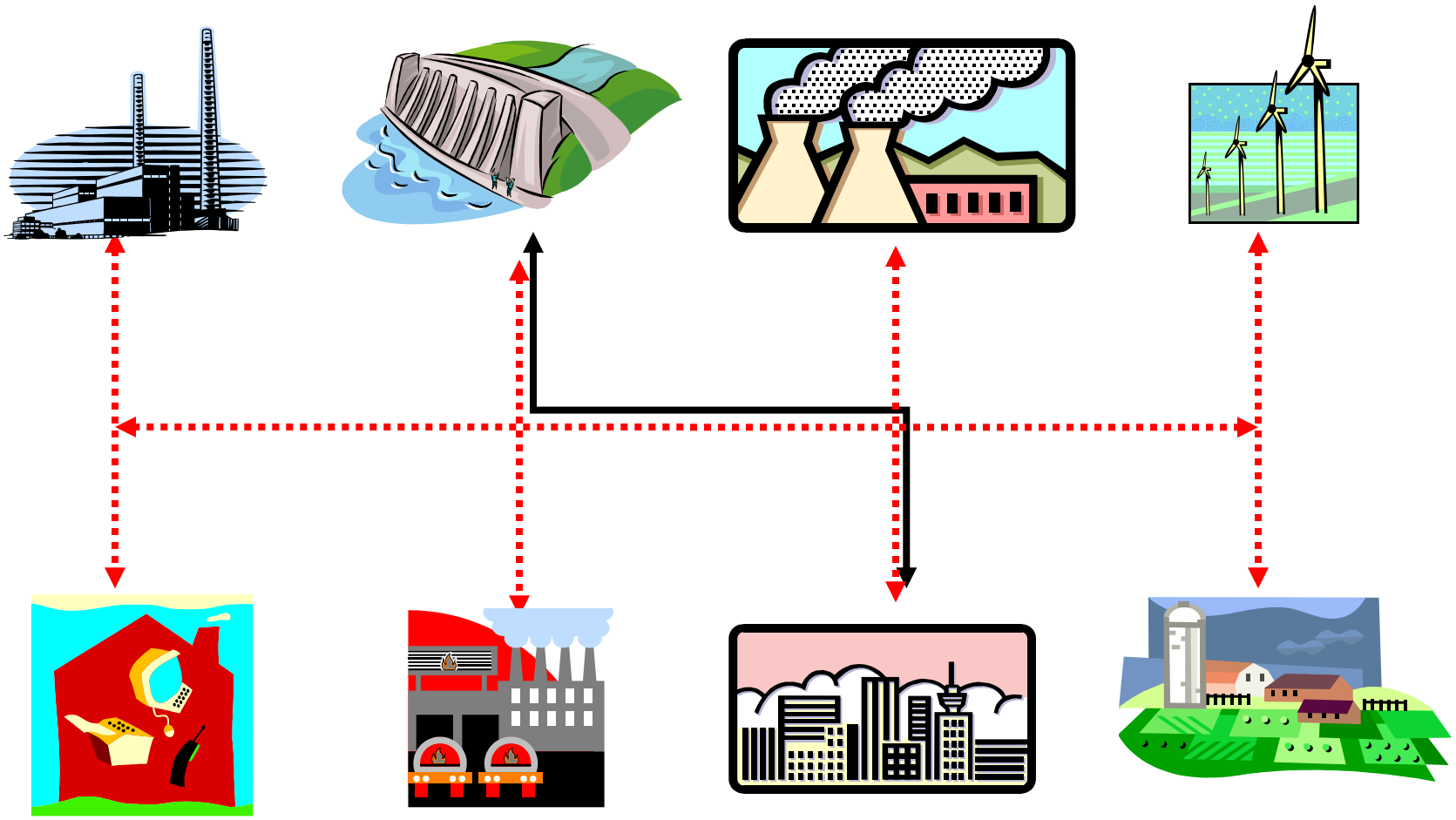
200 million
Cars & Trucks



Less Than 1/3

2 Billion
Other Sources

Contract Path vs Electron Path



*Transmission is, functionally, a **single** economic unit*

*Six Challenges; **Two Crises***

- External, Unpriced, Costs
- Commonalities
- Market Without Demand Curve
- Customer Disinterest & Distaste

.....

- ***Market Power***
- ***Investor Fear and Risk***

Two strange bedfellows, indeed.

This is not a zero-sum game;

it is a structural failure

What is Needed to get the System We Need Built ?

- What do investors want?
  - Theory #1 –
    - High probability of moderate returns
    - Barriers to competition; Holding Company Act
    - Strict enforcement of uniform system of accounts
  - Theory #2
    - Moderate probability of high returns for demonstrated above-average performance
    - Easy entry; Easy Consolidation/Affiliation
    - SEC and FERC tolerance of self-accounting
- Which cluster is more likely to encourage capital investment in vital infrastructure?
- "Lets run the numbers…"

Investor Fear → Capital Flight

*(I should add "back to 1995" data to show the 95 to 98 squeeze-out of excess/stranded investment in **those** years)*

- Utility Stock Market Capitalization:
  - **1998 - $460Billion**
  - Reactions to prospect of competition,
  - This is *before* general market loss
  - **2000 - $395 Billion**
  - Reactions to early years of competition
  - *and* general market loss
  - **2002 - $290 Billion**
  - Trifurcated Results:
  - Market Risk ? Capital Stalls
  - Accounting Issues ? Capital Flees !
  - Cost of Service Pricing Capital Arrives FROM Market !

  - Source: Wilshire 7000 – U.S. Stock Capitalization

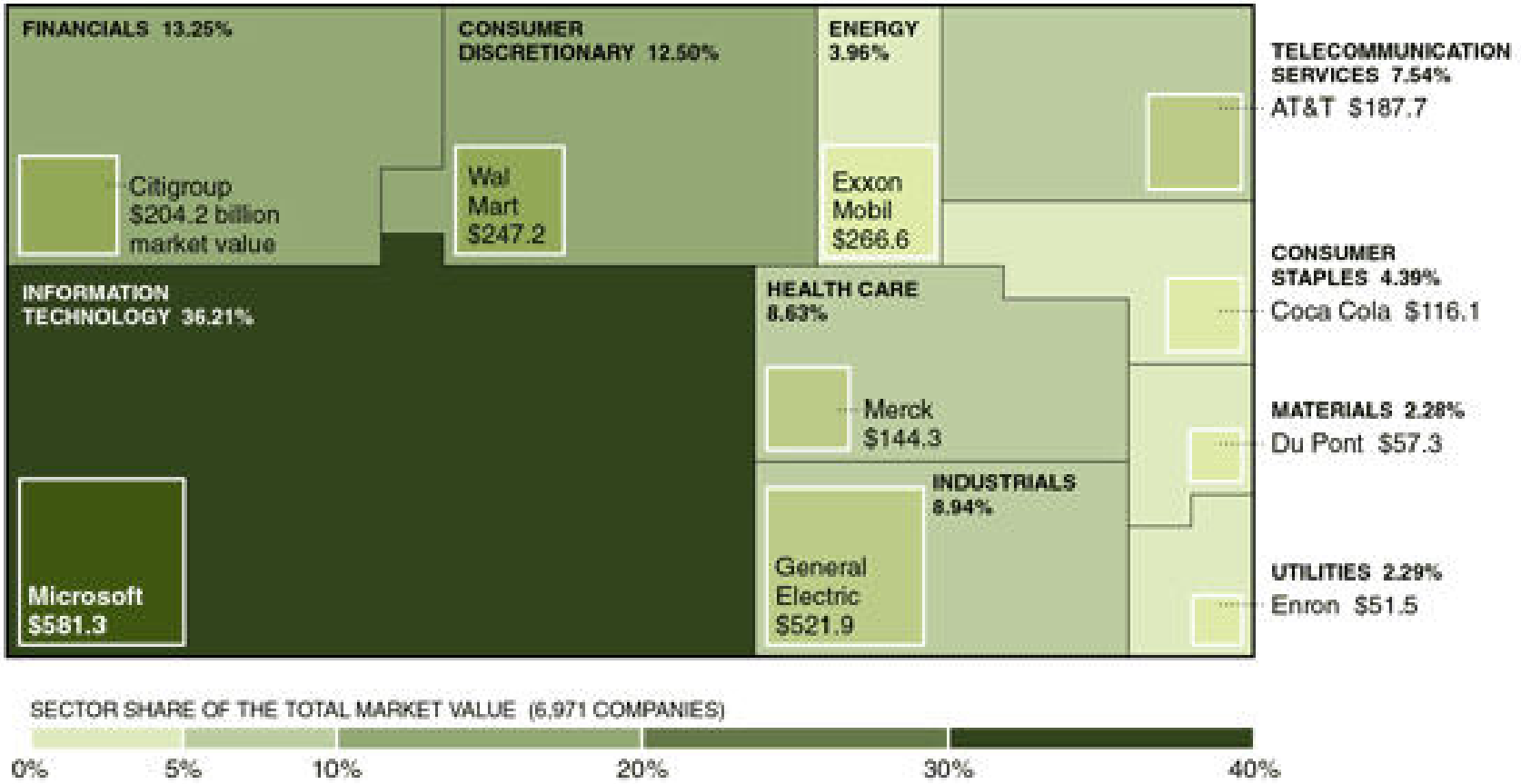
Market Capitalization – 2000

Credit: NY Times

MARCH 24, 2000

Market Value: $17.25 Trillion

Below is a snapshot, based on the Wilshire Total Market index, of the stock market at its peak. The rectangle represents its total value. The biggest company in each sector is shown with its area proportional to its market value. Market value is found by multiplying the number of a company's shares outstanding by its stock price.

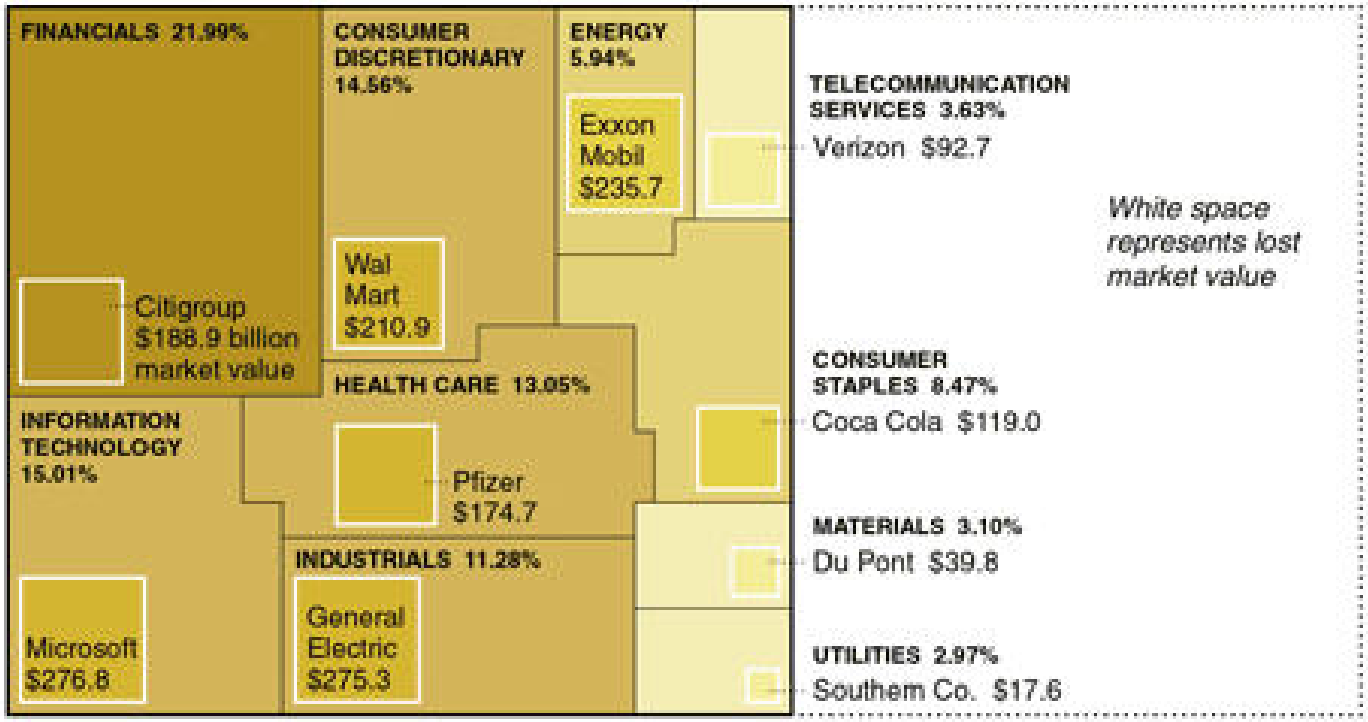


Market Capitalization – 2002

Credit: NY Times

JULY 18. 2002

Market Value: $10.03 Trillion
As of Thursday (the most recent date for which data was available), the market had shrunk by more than $7 trillion. The technology and telecommunications sectors shrank by more than half, and some prominent companies had been replaced as market leaders.



Is the Game Worth the Candle?

- Efficiency Gain from Market May Equal

2-4 % of Delivered Cost of Power (FERC/ICF)

- Premium for Market Risk May Outweigh the Efficiency Gains from Market Discipline:
  "Investors LIKE Monopolies"
- Cost of Increased *Supply Margins* May Outweigh Gains From Market Discipline: Pivotal Firm Analysis Dictates Major Increase In Supply Margins
  - -Blumsack,Perekhodtsev & Lave: Electricity Jnl. 11/02
- Customers Find Risk of Volatility Unacceptable

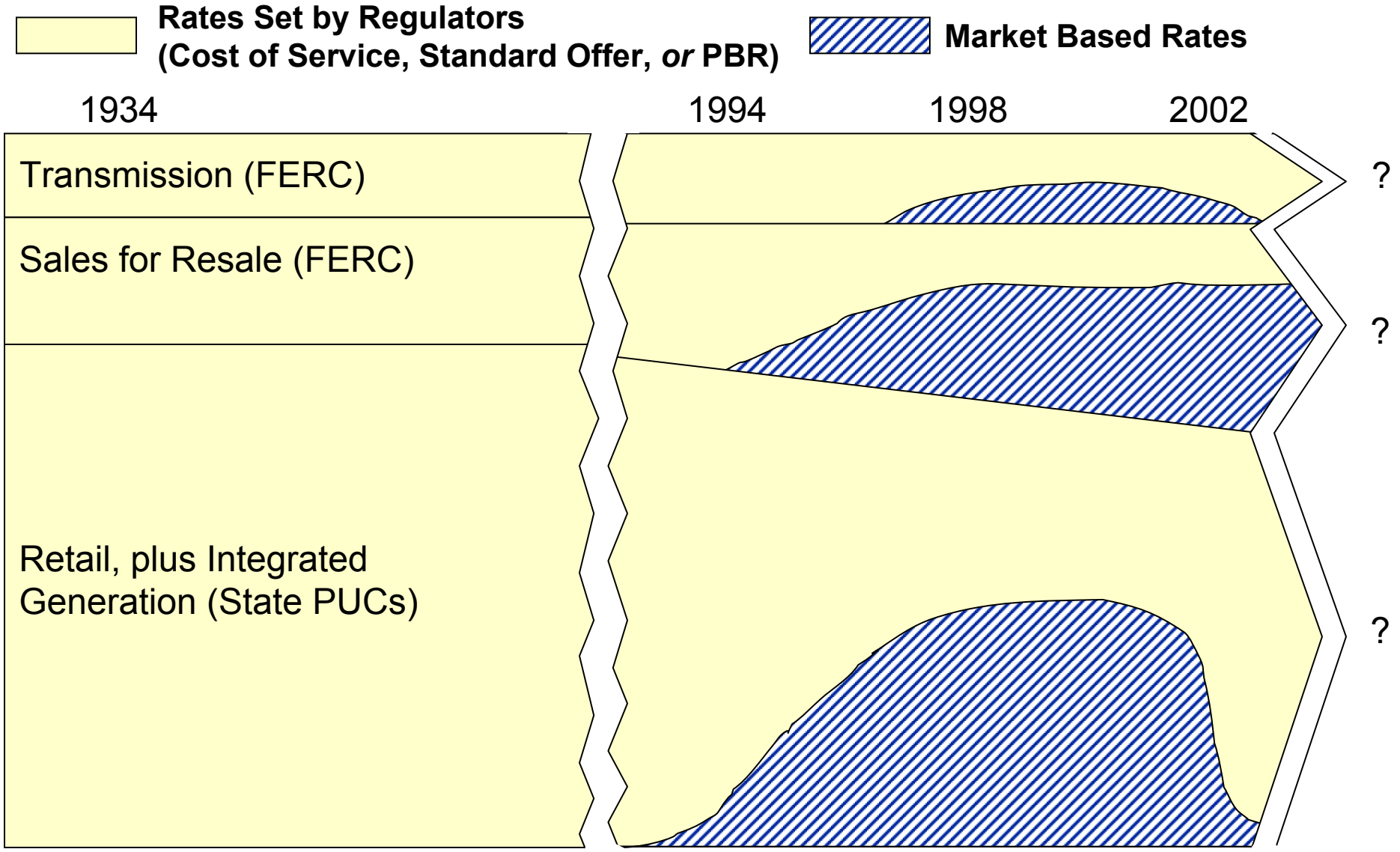
The Market Experiment

- ***Can*** these markets work?
- Jury is still out (and reading exhibits) --
  - Exh A: California 1999-2000
  - Exh B: Enron 2001
  - Exh C ISO-NE & PJM Prices 1999-2002
- Today's FERC is the best we're likely to get--
  "...if they can't do it, it can't be done!"

  Warning:

  This is more a ***challenge*** *than a compliment; i.e., the issues are structural, not personal*

Recovery Of Electricity Investments: Changing Expectations 1934 - 2002



(Proportions conceptual)

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Trying to Make Markets Work

- Get Structure Right the First Time
- Structural Incentives Are FAR More Important than after-the-harm prosecutions
- *High Quality Market **Rules*** Matter More Than Market ***Size***
  - A small market with Demand Response is better than a big market without Demand Response

States DO Have A Role

- **SMD # 1: INTRODUCE A DEMAND CURVE**
  - Only PUCs can set retail rates
- **SMD #2: REAL LOCATIONAL MARGINAL PRICING**
  - Requires FERC/PUC collaboration
- **SMD #3: INDEPENDENT TRANSMISSION CONTROL**
  - Asset transfers require PUC approvals
- **SMD #4: EFFICIENT INTRODUCTION OF RESOURCES**
  - Siting requires PUC approval or support

The RTO as an Ersatz PUC

- RTO performs two intertwined functions:
  - Operational management of transmission grid and supply dispatch
  - Management of wholesale market, as substitute for 'just and reasonable' rates
- Market Management is a regulatory role,
- a replacement for State or FERC *duty*;
- thus, fiduciary duty MUST be to the public good

Fiduciary Duty of an RTO

- General Public Good (not duty to 'market participants')
  1. Responsibility to the long-term good not just short-term
  2. System reliability and operational efficiency
  3. Balance bargaining power of buyers and sellers, not just low transaction costs

Does this look like a State PUC's job?

Vital Premise for SMD

- *The Governance Structure of an RTO or ISO must not be determined by market participants*
  - Market participants provide advisory input only
  - Funding not beholden to participants
  - Participants must not have any decisional authority over the market rules
  - Market monitoring must be arm's length

State Retail Responses

- New England Demand Response Initiative
- Load response is needed *with or without* retail competition
- Huge Hurdles:
- Predictability, simplicity, consistency, transactions costs and lead times

VT PSB: Rate Design Basics

Seasonal Rates vs. Year-Round Rates

	Energy Cost	+ T&D Cost	= Retail Rate
OLD (1978-98)	Higher at VT Peak (Winter)	Driven By VT Peak (Winter)	Higher In Winter
NEW (Since '99)	***Higher at NE Peak (Summer)***	Driven By VT Peak (Winter)	***Near Level Year-Round***

Rate Design Challenge

- PUC rate design must be:
  - easy to understand
  - Predictable, with low customer attention
  - stable
- Yet accurately and 'adequately' reflect wholesale markets that are:
  - complex
  - volatile

Unified Field Theory

- Link between consumer preference and the wholesale market is vital – and missing!
- Consumer FEEDBACK LOOP must be timely –
  - Significance of consumer price elasticity must be perceived ***before*** generation and investment decisions are made

Will end users get a price signal at all ?

Can customers' price preferences be fed back to resource providers fast enough to avoid:

1) needless dispatch, and 2) resource additions ?

What risk premium will capital markets demand for fear the unity is not achieved?

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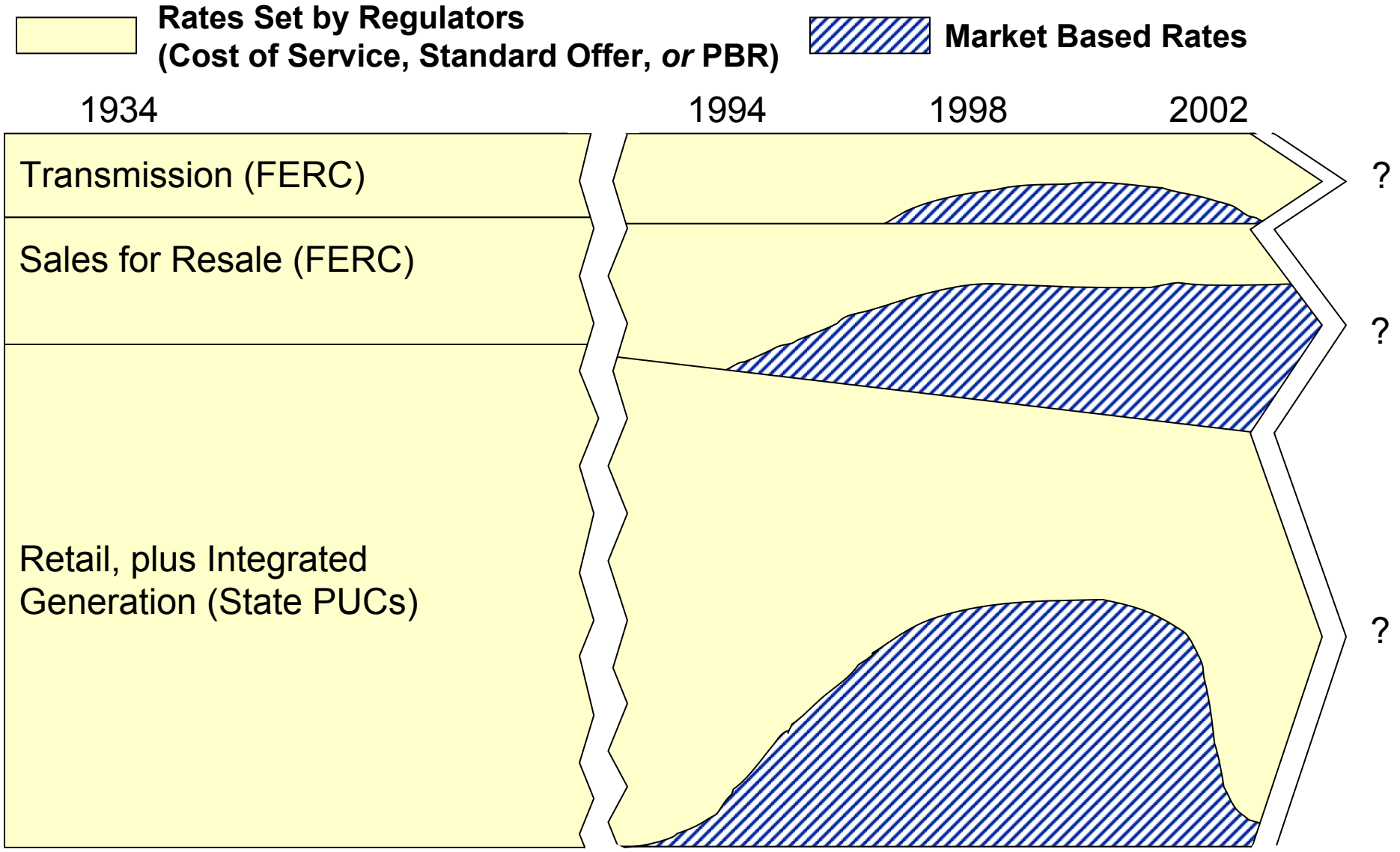

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A Small Anti Trust Exercise

- To discover how much faith investors have in future competition:
- Apply HHI formula, not to last year's revenue shares, but to today's market capitalization ratios.