



Government 2332

Lecture 07

Energy Module #1

Origins and Operation of Energy (Utility) Regulation

February 27, 2006



Plan for Energy Reg Module

1. **Today [2/27]: Energy market specifics & FERC regulation**
2. WEDS [3/1]: Basic theory of Nat Mono Regulation (ROR Reg, Averch-Johnson Critique, poss eff mechanisms)
3. MON [3/6]: Theory, plus history [maybe]
(Ramsey pricing, auditing, then history)
4. WEDS [3/8]: Baron and Myerson, Baron and Besanko models



Questions

1. Where do these price- and return-regulating commissions come from?
2. Why and how did the federal government get involved?
3. How does the system work today?

Origins of Utility Regulation

Trosken: Several explanations for utility regulation.

(1) Classic Theory -- natural monopoly requires price and entry regulation.

(2) Chicago School -- utilities lobby to prevent entry, then they lobby to keep prices high.

(3) Northian Theory -- irreversible investments led to a commitment problem. Once K is spent, firm can't move costlessly, so local politicians have incentive to extract from the firm using taxation.

Trosken: A combination of these explanations. Most evidence exists for (3) in case of Chicago.

Origins of Utility Regulation II

5 periods of regulation in the Chicago gas industry

- (1) **Stability** (1850-1880): Dominance by 2 companies (Chicago Gas Light & Peoples Gas), who colluded to monopolize separate markets.
- (2) **Competition** (1878-1897): Water gas emerges. Market entry by 6 companies, then falling prices. Trust formed in 1887.
- (3) **Unregulated monopoly** (1897-1905): IL passes “gas acts,” merger of remaining companies into one, and rising prices.
- (4) **Municipally regulated monopoly** (1905-1913): Consumers organize, pass Enabling Act of 1905, allowing Chicago to regulate rates.
- (5) **State-regulated monopoly** (1913-present): State Utilities Commission created in 1913.

SUM: The sequence here matters and tells us something. Divergence from competition to regulation, but then convergence of local regulation to state regulation.

Origins of Utility Regulation III

Troesken: Emergence and Operation of Regulation.

- (1) Uses probit analysis to analyze IL House & Sen votes for Enabling Act
 - (a) notice importance of vote to send to comm. If committee will kill a bill, and supporters of the bill know it, then lobbying effort has to be spent on keeping the bill away from comm.
 - (b) Greater production of gas implied greater demand for regulation.
- (2) Problem: After Enabling Act, opportunistic politicians follow in where opportunistic monopolists once trod.

COMMITMENT PROBLEM: Rise in arbitrary and onerous regulation.
- (3) State reg “solves” the commitment problem, constraining both monopoly firms and opportunistic local politicians.

Origins of Utility Regulation IV

Public Utility Holding Company Act of 1935

(1) What the Act did:

Title I: mandated dissolution of all utility holding cos beyond “2nd degree”.
Gave SEC powers over remaining cos. Title II: Gave FPC (now FERC) the ability to regulate interstate gas and electricity markets.

(2) Why it was passed (James).

General theory: need to pay attn to political institutions, esp electoral institutions like electoral college, when looking at design of regulation. Politicians often keeping an eye on the next election.

Analysis of votes: crucial support for the “death sentence” provisions comes from Progressive western Republicans (e.g., LaFollette, Norris).

Operation of Utility Regulation

Does utility regulation decrease prices?

(1) **Stigler and Friedland (1962): NO.** Compare states with and without reg. Simple comparison suggests a difference, but with proper statistical controls, this differential disappears.

Problems: (1) endogeneity: variation in regulation not a “natural experiment”; (2) even in “unregulated states,” state & local govts constrained pricing, so differences might be understated.

(2) **Meyer and Leland (RES 1980): YES.** Pooled data from 48 states, plus “random effects” estimation procedure that allows for differential impacts of reg in different states. They find “pervasive irregularity in reg impact across states and widespread and substantial benefits being conferred by ROR reg” (562).

Problems: (1) some of same problems as S&F -- endogeneity and regulation, (2) random effects assumptions can be heroic.

Issues in Deregulation

Stranded Costs/Investments: Deregulation can be “unfair” and/or “inefficient” b/c investment in the monopoly was undertaken with the expectation that it was to remain a monopoly. So a degree of subsidy is required to compensate bondholders for their losses. Contentious issue.

Which Markets are Deregulated? Wholesale? Retail? Consumer?
Industrial?

What sort of contracting is allowed? Any and all? Many states (e.g., CA) place limits on long-term contracting.

Are other impediments to market entry affected?

California's Electricity Situation Briefing for the staff of the U.S. House of Representatives

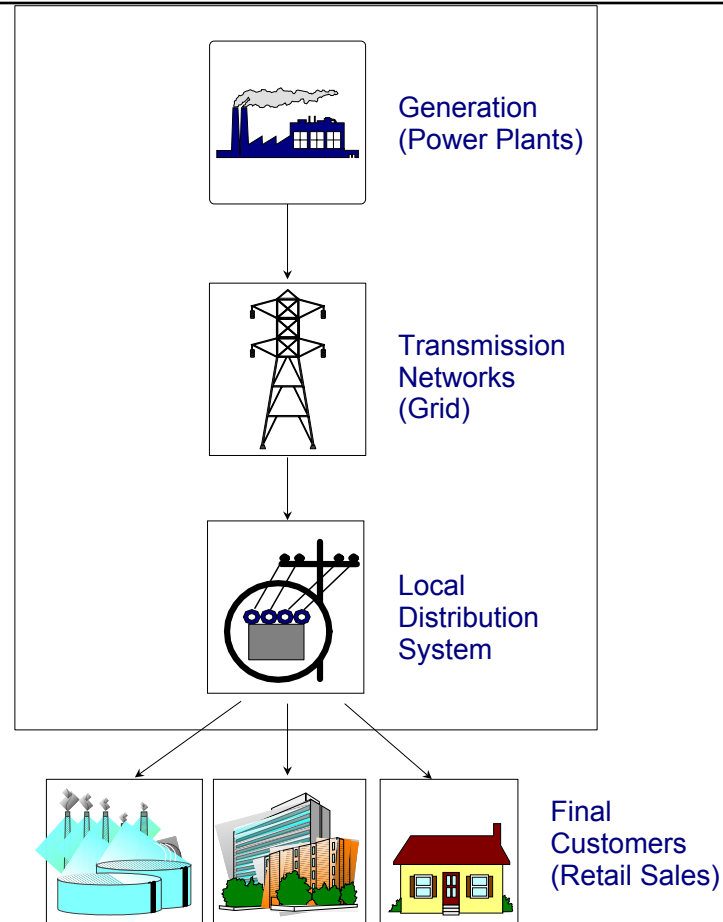
February 9, 2001

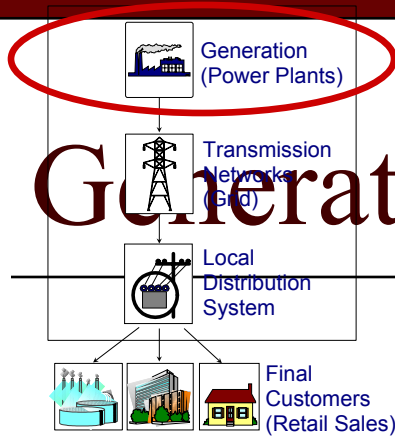
Energy Information Administration

(Updated May 9, 2001)

The following materials were adopted from the EIA's website and are used for educational purposes only.

Vertically Integrated Utility





Generation

- 53,157 megawatts of total net summer capability
- More than half owned by nonutilities
- One quarter owned by publicly owned utilities
- California is interconnected with the other States of the Western Systems Coordinating Council and relies on about 7-11,000 megawatts of out-of-state capability
- California normally exports electricity in the winter and imports electricity in the summer

Generation
(Power Plants)

Transmission
Networks
(Grid)

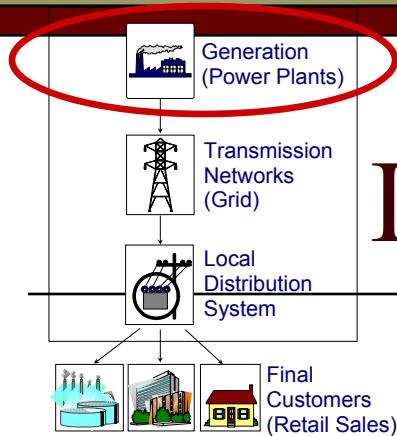
Local
Distribution
System

Final
Customers
(Retail Sales)

Generation

Requirements of AB 1890

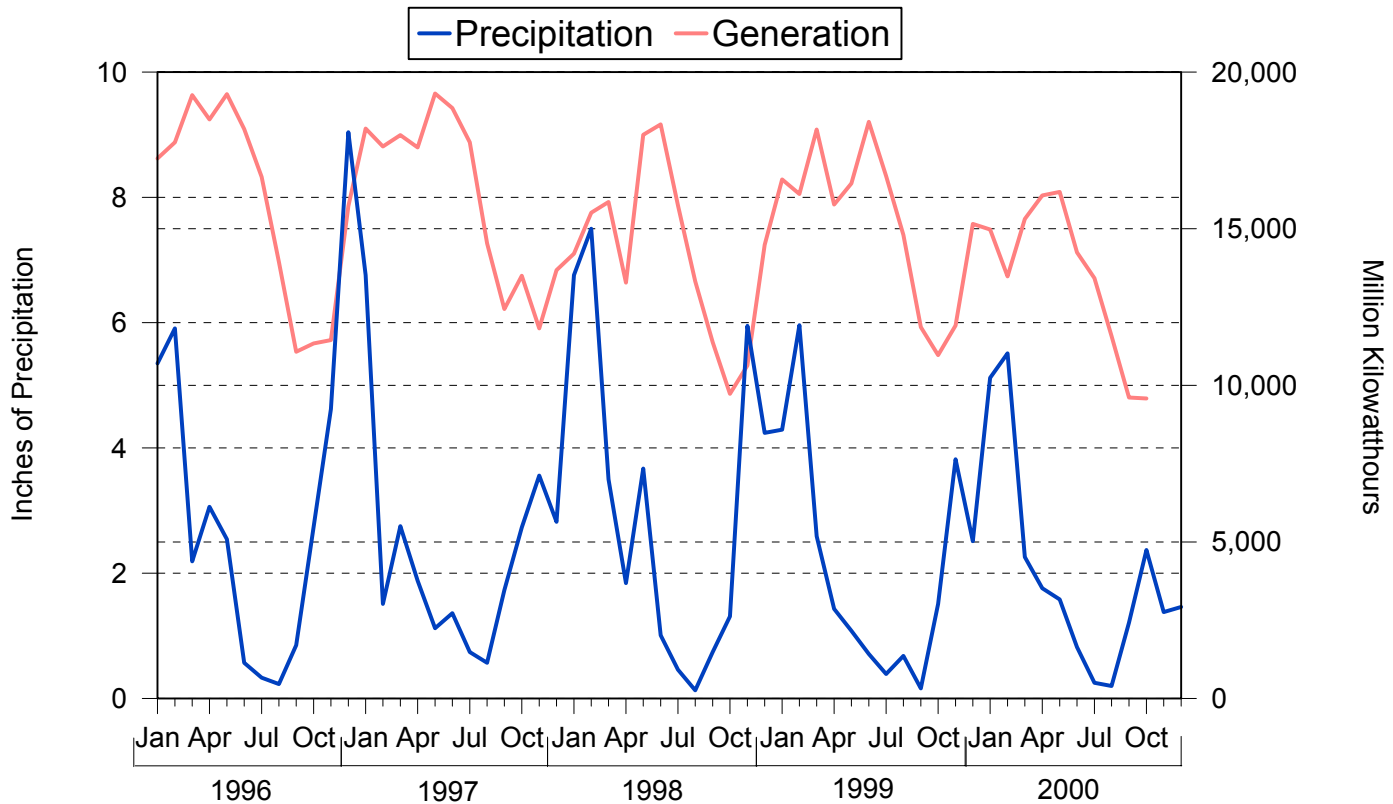
- ❑ California restructuring required investor-owned utilities to sell their generating assets – new owners not required to sell within the State
- ❑ Utilities were required to sell their output to the California PX and buy their electricity exclusively from the California PX
- ❑ No long-term contracts allowed

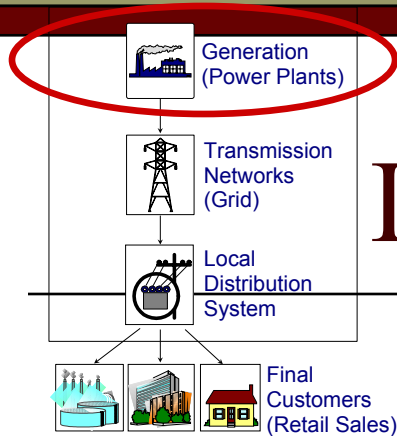


Issues affecting generation

- ❑ Capability decreased 2 percent from 1990-1999, while retail sales increased by 11 percent
- ❑ 10,000 megawatts of total capability out of operation due to forced and/or planned outages
- ❑ Unusually low water level, losing about 3,000 megawatts of capacity from the Northwest

Pacific Region Precipitation and Hydroelectric Generation, 1996 - 2000





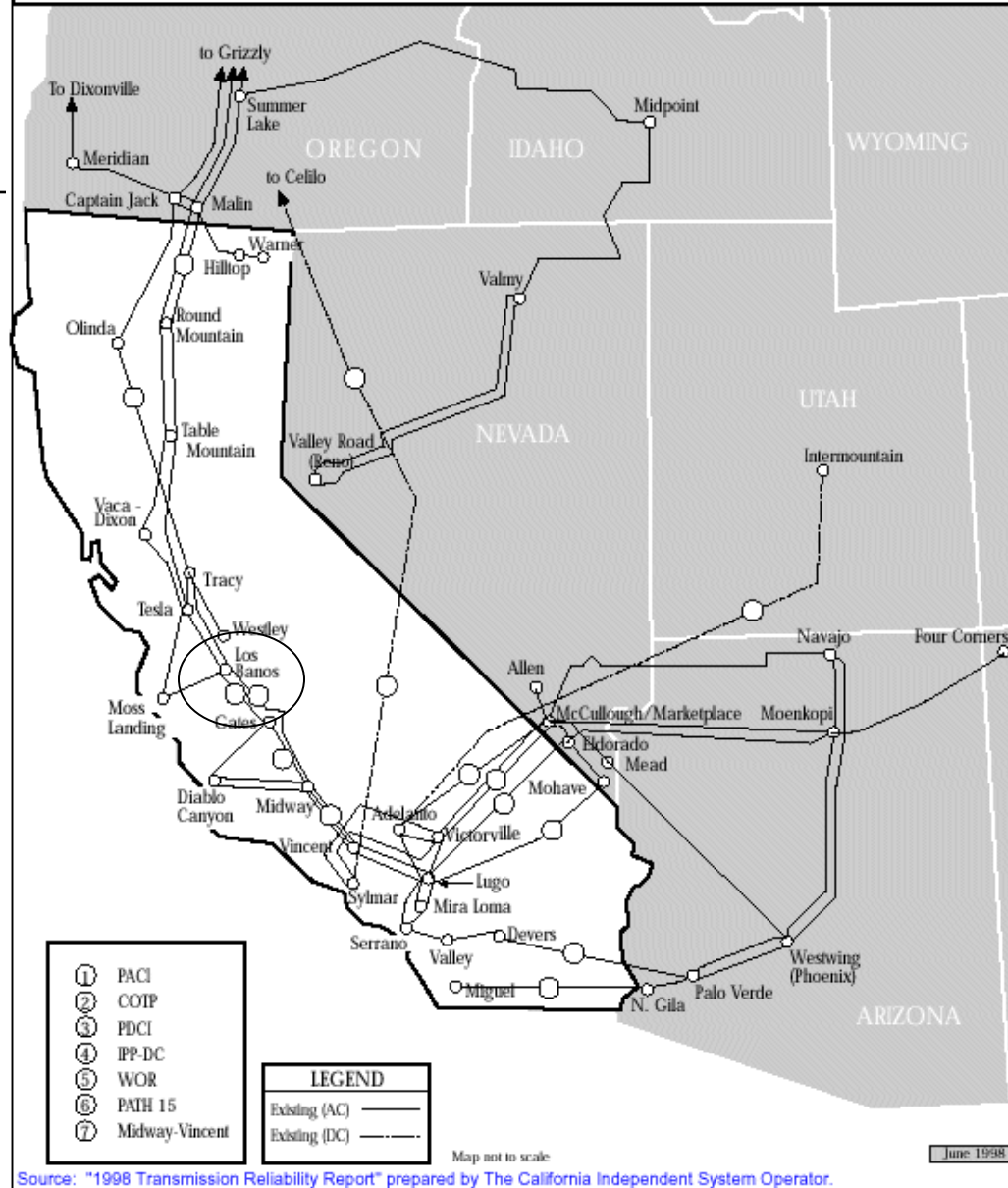
Issues affecting generation

- ❑ Excess electric generation in summer caused some to use all available emission allowances for year
- ❑ High cost of emissions and emissions constraints
- ❑ Cap placed on wholesale electricity prices
- ❑ Natural gas price increases and El Paso natural gas pipeline explosion
- ❑ Uncertainty for independent electric generators to receive payment



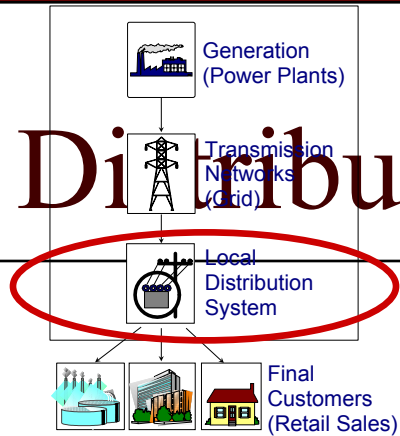
- Federal Energy Regulatory Commission oversees Independent System Operator (CAL-ISO) which administers the grid, accounting for 75 percent of California grid
- The three utilities had to give up the operation of their transmission lines to the ISO, while still owning them in accordance with FERC Order 888
- Transmission constraints limit the amount of electricity that can be moved between Northern and Southern California (see map)

FIGURE B-2-1
 MAJOR TRANSMISSION FACILITIES
 IN CALIFORNIA AND WESTERN U.S.
 (230KV and above)

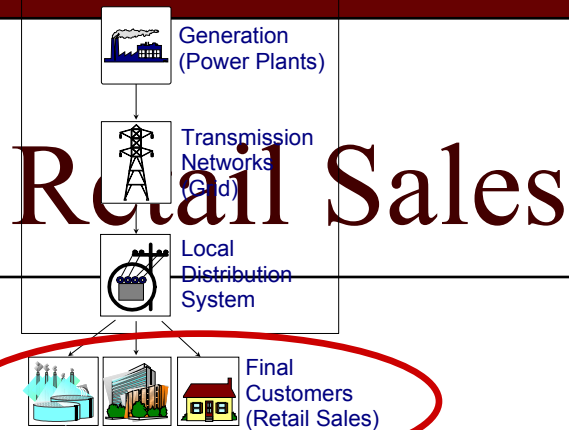


Source: "1998 Transmission Reliability Report" prepared by The California Independent System Operator.

Distribution



- Distribution facilities continue to be operated by the three traditional utilities and regulated by California PUC



- ❑ AB 1890 reduced retail rates by 10 percent and then froze them until March 2002
- ❑ 24 California ESP's accounted for about 10 percent of electricity sales in the State in 1999, but electricity still delivered by utility
- ❑ Where rates were capped, the effect of the higher power acquisition prices was not seen by the consumer – instead the provider absorbed the higher costs (i.e., PG&E, SCE)
- ❑ Where rates were not capped, the consumer paid the higher costs (i.e., San Diego)



Conclusions

- ❑ Generating capacity tight
- ❑ Long-term contracts not allowed
- ❑ Wholesale prices capped
- ❑ Transmission line constraints
- ❑ Natural gas prices much higher than normal
- ❑ California utilities' rates frozen
- ❑ California purchased all of their electricity at prices higher than they were allowed to pass on to consumers
- ❑ Generators and fuel suppliers were reluctant to sell to bankrupt utilities