24th International Training Program
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Session 20e

Incentive Regulation: Cases in the Electricity Sector

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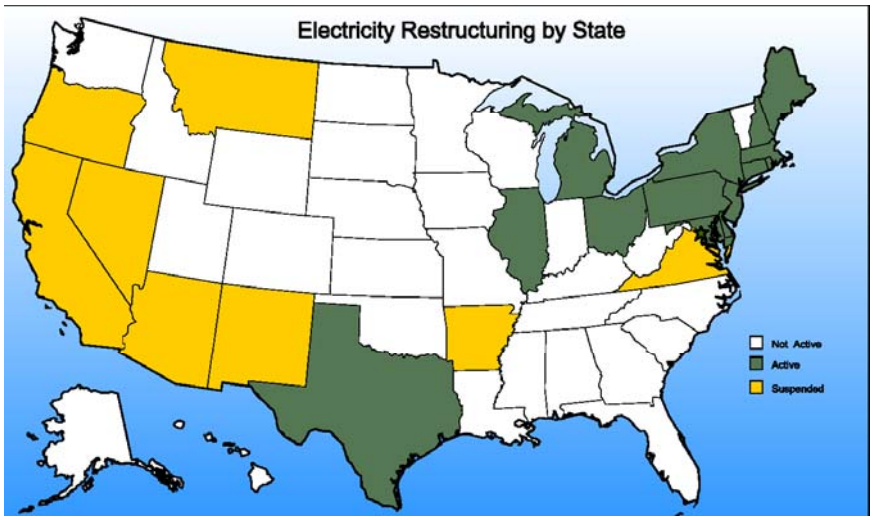
Overview of Session

- Average electricity rate changes in the U.S.
- Alternative form of rate regulation
- Negotiated Contract Rate
- Economic Development Rate
- What has worked and what has not worked
- Challenges of ensuring safe and reliable service at reasonable prices
- Five sample exercises
- Issues for successful reforms

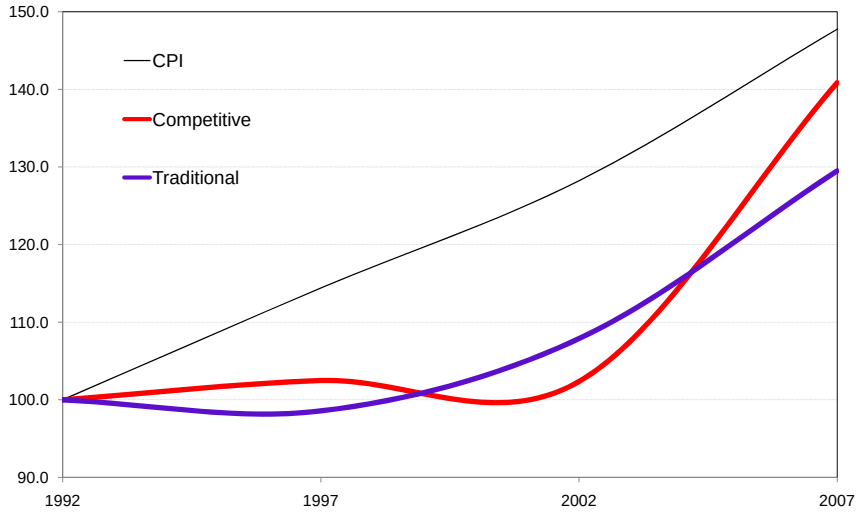
Current Status of Restructuring



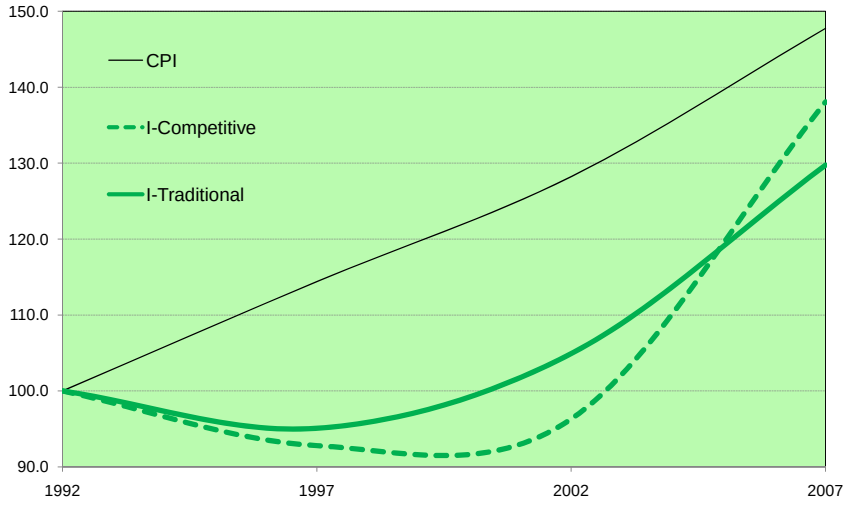
Differences in Average Electric Prices

- Previous chart showed 14 states and the District of Columbia (all in green color) which are restructured and allow competitive suppliers provide retail choice for customers.
- The rest of the 35 states have traditional cost of service regulation.
- Restructuring as a movement took place in the mid-90s to late-90s.
- The next four slides compare the average price of electricity for the two groups – competitive and traditional – with the Consumer Price Index (CPI) from 1992-2007. *[All values are indexed to 100 to allow for a better comparison.]*
- As seen in the slides that follow, while electricity prices were lower than the CPI, the rates for the competitive states were lower until 2002 and then begin to be greater than those for the traditional states.
- Among customer classes, the industrial customers in the competition states fared better until recently when their rates began rising.

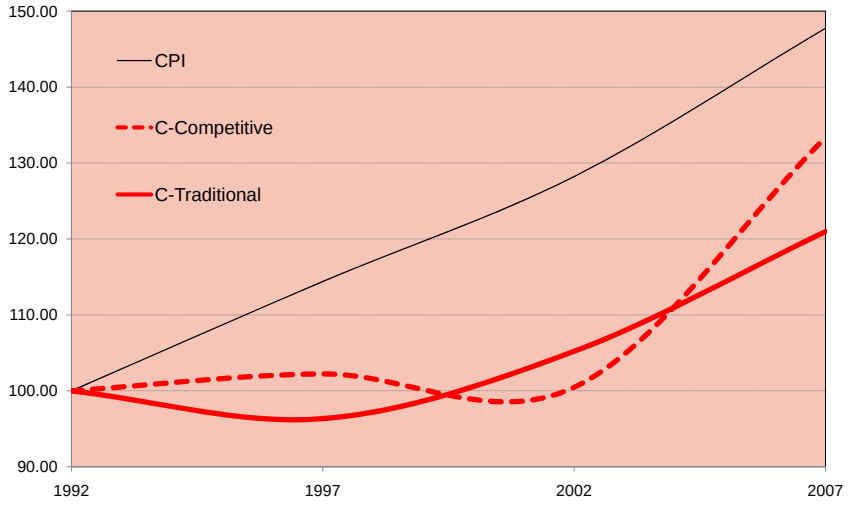
Average Electricity Prices in the U.S.



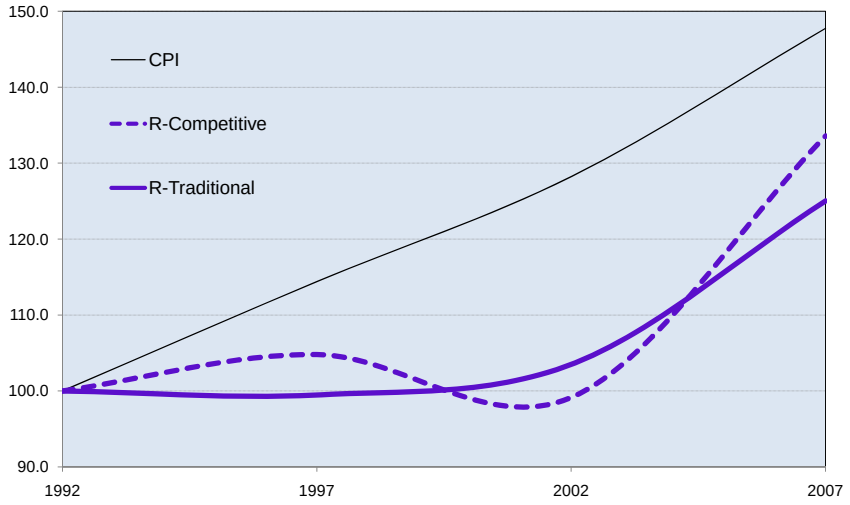
Average Electricity Prices for the Industrial Sector in the U.S.



Average Electricity Prices for the Commercial Sector in the U.S.



Average Electricity Prices for the Residential Sector in the U.S.



Traditional Rate-Making

- Comparable returns for investors in other financial markets
- Utility is allowed the **opportunity** to earn a reasonable return on its investment
- A fair rate of return is one that will allow the utility to recover its costs of all classes of capital used to finance its rate base
- If utility earns less than authorized ROR, then it files for new rates
- If utility earns much higher than authorized ROR, then regulator can examine and may reduce earnings
- A fine balancing act

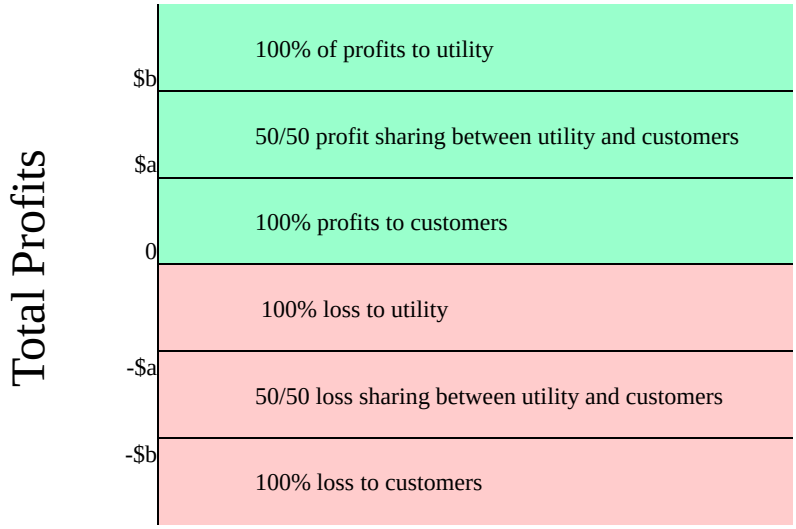
Alternative Rate Regulation

- Incentive regulation
  - Performance-based rates
  - Benchmarking
  - Rate caps
  - Service standards
- Special Rates
  - Negotiated Contract Rates
  - Economic Development Rates
- Market-based rates
  - Long-term contracts
  - Day ahead; Spot

Regulatory mechanisms

- Traditional rate-of-return
- Cap revenue at a maximum level
  - *Service may suffer*
- Share costs, revenues, or profits
  - *Allow utility to keep profit only over a certain % or bear costs below a certain %*
- Modify price caps
  - *Customers may not like this strategy*
- Incentives (% or amount) for specific items
  - e.g., service quality
- Hybrid mechanism

Let Utility "Earn" Rewards!



Sample Text for a Negotiated Contract Rate (NCR) Tariff

- Purpose - The Negotiated Contract Rate (NCR) is intended to enable the utility to respond to customer needs and the increasingly competitive forces in the energy and delivery services market. It shall be used by the utility to respond to competitive pricing situations resulting from fuel switching, facility relocation or expansion, partial or complete plant production shifting, and potential physical bypass. The utility shall use the provisions of this tariff classification only after a determination that other existing tariff options will not meet the customer's needs.
- Eligibility - Customer qualification shall be based upon meeting each of the following criteria as determined by the utility:
  - (a) The customer has an economic competitive alternative to full or partial service from the utility's
  - standard tariff rates;
  - (b) The customer is likely to select such an alternative if the utility does not provide an NCR offer; and,
  - (c) The customer will provide net revenues above the incremental costs to provide service.
- The utility's evaluation of the application shall consider the economics of the competitive alternative, as well as the practical aspects of securing that alternative such as, ability to secure environmental permits, feasibility studies, switching ability, ability to secure required capital, etc.
- Contract - Eligible customers will be presented with a contract, which specifies the terms and conditions of the contractual agreement between the utility and the customer.
- Pricing Options - Pricing shall be determined on a case-by-case basis according to the nature of the competitive situation. The final arrangements between the utility and the customer shall be included in the Contract.
- The Utility shall file the Contract terms with the Commission at least 30 days prior to the effective date of the Contract.

Negotiated Contract Rate: Slide (1 of 3)

Class of customer	No. of Customers	Average Monthly kWh	Rate = Per kWh cost	Revenues	Revenue from class as a % of total	Change in average monthly bill
Industrial	1	100000	2.00	200000	4.6%	
Commercial	10	5000	3.00	150000	3.4%	
Residential	10000	100	4.00	4000000	92.0%	
Total				4350000	100.0%	

Negotiated Contract Rate: Slide (2 of 3)

Class of customer	Number of Customers	Average Monthly kWh	Rate = Per kWh cost	Revenues	Revenue from class as a % of total	Change in average monthly bill
Industrial	0	100000	2.00	0	0.0%	
Commercial	10	5000	3.00	150000	3.4%	
Residential	10000	100	4.00	4000000	92.0%	
Shortfall				200000		
Total				4150000	95.4%	

Negotiated Contract Rate: Slide (3 of 3)

Class of customer	Number of Customers	Average Monthly kWh	Rate = Per kWh cost	Revenues	Revenue from class as a % of total	Change in average monthly bill
Industrial	1	100000	1.00	100000	2.3%	-50.0%
Commercial	10	5000	3.00	150000	3.4%	
Residential	10000	100	4.10	4100000	94.3%	2.5%
Total				4350000	100.0%	

Economic Development Rate

- Same example as Negotiated Contract Rate
- Except with conditions, such as, the manufacturing company guarantees to:
  - Invests "Y"% of company value or $"Y" million in expansion
  - Adds "Y" number of new jobs and no firing for "Y" years
  - Other such conditions that benefits the society in general in lieu of the reduce rates that will be borne by the rest of the customers (society)
- All this ensures that utility is not put in a "death spiral" – someone has to provide this public service!

Sample Text for an Economic Development Rate (EDR) Law

- The commission shall establish procedures for the review and approval of tariffs for electric service rates that foster economic development and of tariffs for retention of existing load within the state.
- Such rates shall take into consideration eligibility criteria, the effect on the utility's fixed and variable costs, the amount of new demand and energy for electric service involved, the effect on employment within the state, material adverse competitive impact on existing in-state firms, and end-user participation in conservation programs and other state established economic development enhancement programs.
- To ensure fairness in the application of the Economic Development Rate (EDR) to industrial load that is not planning to leave the utility, if the commission finds that it is in the public good, the retention rate may also be offered to a direct competitor of a company that has qualified for such rate.
- EDR shall be available to a customer only if the utility represents that the load would otherwise have left the utility.
- EDR shall be available to all new industrial companies to the state and for all expansion of existing load without such representation by the utility, provided that eligibility criteria are met.
  In any rate proceeding subsequent to approval of EDR, the commission shall not impute to the utility's test year revenues or revenue requirement the difference between the regular tariff rate and the EDR provided that those customers qualify for the rate.
- The incremental benefit of the EDR, which is the excess of the incremental revenues over the incremental cost attributable to the EDR, shall be allocated by the commission between the utility and its other ratepayers in a manner consistent with the public interest, as determined by the commission.

Case 1: Capped rates/price

- Desire to protect customers from potential price volatility
- LSE/DistCo buys power on the open market or through contracts with fuel cost pass through
- LSE/DistCo sell the power at a capped rate
- Have very little/no generation to serve load
- Two separate problems:
  a) Market price < capped rate, then perception that cost savings not being passed on customers
  b) Market price > capped rate, LSE/DistCo bankrupted, dire consequences, consumers left with no service
- *Solutions?*

Case 2: Profits without efficiency gains

- T&D utility subject to price cap regulation
- Expected to make efficiency gains beyond the X-factor to make extra profits
- Utility simply increases the volume of service units over the forecasted volume to increase profits without reducing costs
- Induce cost reductions without increasing volume when consumers need it or increase efficiency in usage
- *Solutions?*

Case 3: Aggressive Cost Cutting/Efficiency

- Utility actively seeks to reduce costs, but for some reason cannot operate the business profitably
- Government policy that strongly encourages energy conservation due to extenuating circumstances (think about a hydro power dominated system that is in the middle of a drought)
- *How can this situation be changed so that the utility will be rewarded for its cost cutting, but not interfere with the conservation policy?*

Case 4: Timing of Cost Reductions

- Price cap regime for a 5-year period
- X-factor of 5% per year so that prices in real terms are about 25% less at the end of price cap period
- Observe aggressive cost reductions initially but later these are either not aggressive, or actually start increase
- "Excessive" profits that are not politically sustainable and customers feel like they should benefit from these cost savings
- *How would you modify the regulatory mechanism to solve this problem?*

Case 5: New regulator

- New regulator; have yet to build up expertise and human/technical resources capabilities
- But have to implement a regulatory mechanism by law
- *How would you:*
  a) *implement regulation initially to give your agency time to build up its capabilities and yet induce efficiency gains by the utility?*
  b) *avoid political pressures with potential problems of "excessive" profits or losses?*
- What are the challenges faced from legislators, industry, and consumers?

Issues for successful reforms

- Bilateral contracts
- Obligation to ensure reliable delivery – possible penalties for non-delivery
- New electricity suppliers
  - Affiliates of generating companies
  - Brokers and aggregators without any generation
- Licensed based on different criteria such as financial and technical capabilities
  - Supplier bonded or financially fit
  - Supplier meets technical and financial guidelines established by regulator
  - Supplier agrees to uphold consumer protection laws and reliability standards
  - Supplier supports the consumer education requirements