The Challenges of Ratemaking for State Utility Commissions

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Questions Addressed

- Why is NRRI doing this study now?
- What do we mean by traditional and new rate mechanisms?
- Why is it important to address the topic of this study objectively and comprehensively?
- How should regulators evaluate different rate mechanisms?
- What are the new rate mechanisms under discussion?
- What are their expected outcomes in terms of advancing and impeding different regulatory objectives?
- How can state commissions use the information in this study for decision-making?
- What have been the experiences of new rate mechanisms?

History of Utility Ratemaking

- ✓ Legal underpinnings
- ✓ Evolution of utility rate mechanisms over the past several decades
- ✓ Objective of state utility commissions to achieve a "balancing act"
- ✓ Commission adaptability to a changed market and political environment
- ✓ Constant challenges for state utility commissions to advance the public interest
- ✓ Changing perspective of "just and reasonable" rates, and no definite criteria except for "boundary" conditions (e.g., no confiscation of investors' property, no undue price discrimination)

Reasons for New Rate Mechanisms

- Questioning of the tenets and underlying assumptions of traditional ratemaking
- Much of the push comes from stakeholders (e.g., utilities, environmentalists, large utility customers) that want to advance their own self-interests
- Incidentally, throughout the history of public utility regulation, stakeholders have petitioned commissions to revisit old rate mechanisms and consider new ones (e.g., late 1960s and early 1970s)
- Added regulatory objectives, including the advancement of energy efficiency and renewable energy, and utility service affordability
- New market and operating conditions (e.g., rising average costs, slowdown of demand growth)
- Large capital expenditures, some of which is non-revenue producing
- The challenge for commissions is to evaluate whether new rate mechanisms are in the public interest

Objectives of New Rate Mechanisms

- Reduce risk to utilities and financial deterioration (e.g., improve utility credit and financial indicators in line with Wall Street wishes)
- Promote certain social goals (e.g., affordability)
- Facilitate new investments, especially those that don't generate additional utility revenues
- Promote new technologies (e.g., solar and other renewable energy, smart grid)
- Foster energy efficiency
- Increase public benefits from utility investments and other activities
- Reduce the frequency of rate cases
- Mitigate regulatory lag

New Rate Mechanisms: Grouping by Objective

Objective	New Rate Mechanism
Reduce utility financial risk	Cost trackers, infrastructure surcharges
Reduce regulatory lag	Future test years, CWIP, multiyear rate plans, cost trackers, formula rates, infrastructure surcharges
Reduce the frequency of rate cases	Formula rates, multiyear rate plans, future test years
Eliminate utility disincentive for energy efficiency by reducing the risk of revenue erosion	Revenue decoupling, straight fixed-variable rates
Make utility service more affordable to all customers	Inverted rates, discounted rates, percentage-of-income mechanisms
Promote renewable energy	Net metering rates, feed-in tariffs, green pricing
Prevent uneconomic bypass and ease the ability of the utility to compete in certain markets	Flexible rates, special contracts
Optimize energy usage over different times	Time-of-use rates, critical peak pricing, real-time rates, seasonal rates
Lessen the rigidity of regulation	Price caps, flexible rates
Avoid rate shock	Infrastructure surcharges, CWIP, phase-in
Promote specific activities	Special incentives for energy efficiency, pipeline capacity release, off-system sales

Challenges for Commissions

- Multiple regulatory objectives
- Conflicting objectives and inevitable tradeoffs
- Objectives difficult or impossible to quantify, and impossible to identify empirically the contribution of individual objectives to the public interest
- No consensus on the definition of the public interest
- Uncertainty of outcomes
- Difficulty of interpreting biased information

Traditional and New Regulatory Objectives

- Affordable utility service
- Energy efficiency
- Power diversity that includes renewable energy
- Innovations
- Reliability
- Safety
- Price predictability
- Price stability
- Revenue stability
- Timely cost recovery
- Economic efficiency
- Clean environment
- Level playing field in competitive markets
- Infrequent general rate cases

Three Essential Steps for Effective Ratemaking

- ***Defining the public interest in terms of the regulatory objectives***
  - What are the underlying regulatory objectives?
  - The public interest relates to regulatory objectives and the weights applied to each
- ***Understanding the effect of each ratemaking proposal on the different objectives***
  - Regulators should have access to unbiased information
  - Otherwise they will react to biased information by making incorrect decisions even when they are fair-minded
- ***Processing all the information systematically***
  - For example, regulators have to account for the inevitable tradeoffs in addition to assessing the public-interest effect of individual rate mechanisms
  - A regulator's decision is akin to purchasing a car, where a person must balance power, safety, fuel economy, appearance, maintenance costs, purchase price, reliability and other features to reach a decision that maximizes her well-being

Evaluation of Individual Rate Mechanisms

- ✓ This task is the core of the NRRI paper
- ✓ Within the context of regulatory objectives (e.g., real time prices can make customer bills highly volatile)
- ✓ Expected outcomes based on economics and real-world experiences (e.g., revenue decoupling removing disincentives for utility- initiated energy efficiency)
- ✓ The study does not make recommendations on whether a particular rate mechanism is good or bad

Different Effects of Rate Mechanisms On Regulatory Objectives

Rate Mechanism	Positive	Negative	General Comments
Traditional ROR ratemaking	• Emphasis on due process • Focus on utility prudence • Simple for public to understand • Perception of fairness • Avoidance of undue price discrimination • Rate stability • Strong utility incentive for cost management between rate cases • Long-standing core ratemaking paradigm	• Pricing rigidity • Disincentives for promoting certain social goals, such as utility-initiated energy efficiency • Excessive regulatory lag under inflationary and stagnant sales growth • Inefficient average-cost pricing • Weak long-term utility incentives for cost management • Weak utility incentive for innovations (assuming rigid profit controls) • Frequent rate cases in a dynamic environment • Incentive for excessive capital	• Strongest justification under stable market and utility operating conditions • Problems arise in a dynamic environment • Throughout its history, traditional ROR ratemaking has endured attacks from different stakeholders • Although changes around the edges, traditional ROR ratemaking still dominates state utility ratemaking • Most other countries reject U.S.-style traditional ROR ratemaking

Rate Mechanism	Positive	Negative	General Comments
Standard two-part tariff	• Public acceptability • Protection of low-usage utility customers • Utility incentive for managing costs to increase sales	• Prevention of utilities recovering their prudent fixed costs • Disincentive for utilities to advance energy efficiency • Cross-subsidy of low-usage customers by high-usage customers • Economically inefficient • Lessened utility competitiveness in certain markets because of higher marginal price • Negative hedging effect on utility customers	• Utilities and conservationists alike have questioned (for different reasons) the merits of the standard two-part tariff • The reason for interest in modifying the rate structure is that it conflicts with other regulatory objectives • Some headway in recent years in gradually shifting more of the fixed costs out of the volumetric charge • Much resistance to make a wholesale shifting of fixed costs to a customer or service charge • A few examples where gas and electric utilities have gone to SFV rates

Rate Mechanism	Positive	Negative	General Comments
Infrastructure surcharge	• Avoidance of rate shock or large one-time rate increases • Mitigation of cash flow and other utility financial problems • More timely cost recovery without a rate case • Appropriateness especially for non revenue-creating investments	• Potential for imprudent utility performance • Risk shifting to utility customers	• Surcharges have proliferated in recent years • Increasingly, state legislatures have allowed or mandated commissions to use surcharges • They are more appropriate for new projects, such as gas pipeline replacement programs, that do not create additional utility revenues • Commissions generally require the meeting of milestones and other benchmarks for early cost recovery

Rate Mechanism	Positive	Negative	General Comments
Straight fixed-variable rate	• Efficient rate structure that gives utility customers good price signals • Enhanced utility-earnings stability • More levelized utility bills across seasons • Positive hedging effect on utility customers • Removal of utility disincentives for energy efficiency • Removal of inequities caused by intra-class subsidies • Consistent with the pricing of many other goods and services	• Adverse effect on low-usage customers, some of whom may be low-income households • Disincentive for price-induced energy efficiency • Questionable public acceptability	• SFV is less popular than revenue decoupling in removing utility disincentives for energy efficiency • SFV has a definite image problem • Generally, SFV faces intense opposition by different groups • Although not accepting of a SFV rate design, over the past several years many commissions have moved toward this rate design via an increase in the customer charge • SFV can have an "equity" problem in that it could cause some customers to see dramatically higher bills • Although SFV has a number of favorite traits, the negative traits have dominated the debate in regulatory proceeding

Rate Mechanism	Positive	Negative	General Comments
Special rates to low-income households	• Affordability of utility service to more customers • Improvement of utility arrearage/bad debt problem • Reduced utility costs for disconnections • Increased reconnections	• Higher rates for general ratepayers • Excessive consumption by targeted customers • Price discrimination	• Several states have special rates for eligible low-income households • They vary considerably across states, with some having percentage-of-income plans while others have a fixed discounts off the normal tariff • Some rate structures are more effective in minimizing distortions or producing higher benefits per dollar funded by general ratepayers • Although discriminatory, special rates to low-income households pass muster in most states because they serve some social purpose

Rate Mechanism	Positive	Negative	General Comments
Formula rate plan	• Reduced utility financial risk • Sharing of abnormal profits between rate cases • Less frequent general rate cases • Avoidance of single-issue ratemaking and distorted incentive problems with cost trackers • More moderate rate changes compared with traditional ROR ratemaking • Increased utility incentive to promote social goods	• Questionable incentives for utility cost management because of (1) reduced regulatory lag and (2) scrutiny of utility costs • Downsides of less frequent general rate cases • Additional reporting and monitoring requirements	• Formula rates are concentrated in the Southeast for setting rates for both electric and gas utilities • Existing plans have generally met with satisfaction from stakeholders as well as the commissions • It is somewhat surprising that we don't observe more formula rate plans to replace the large number of cost trackers that many utilities have • Some economists favor price caps and multiyear rate plans over formula rates, largely because of the incentive effect

Regulatory Objectives and Rate Mechanisms

Regulatory Objective	Rate Mechanisms with Tendency toward Positive Effect	Rate Mechanisms with Tendency toward Negative Effect
Revenue sufficiency	Revenue decoupling, straight fixed-variable rates, formula rates, future test year, declining-block rates	Inverted rate, standard two-part rates, subsidized prices, historical test year
Profit stability	Revenue decoupling, straight fixed-variable rates, formula rates, declining-block rates	Inverted rate, standard two-part rates
Public acceptability	Standard two-part rates, subsidized rates	Revenue decoupling, straight fixed-variable rates, discriminatory prices, time-of-use rates
Proper price signals	Marginal-cost pricing, straight fixed-variable rates	Standard two-part rates, subsidized rates
Fair sharing of fixed costs	Embedded-cost pricing	Special contracts, discriminatory prices
Fair sharing of risk	Standard two-part rates, formula rates	Cost trackers, infrastructure surcharges, CWIP in rate base

Regulatory Objective	Rate Mechanisms with Tendency toward Positive Effect	Rate Mechanisms with Tendency toward Negative Effect
Promotion of utility innovations	Targeted incentives, preapproval of project and costs, regulatory lag (for utility retention of cost savings), upfront regulatory commitment , accelerated depreciation, infrastructure surcharges	Traditional ratemaking, cost-based rates, regulatory lag (for utility recovery of investment costs), 20/20 hindsight reviews, book depreciation, entry restrictions for new firms
Encouragement of new investments	CWIP in rate base, future test year, infrastructure surcharges, formula rates, multiyear rate plans, subsidies, preapproval of project and costs, accelerated depreciation	"Used and useful" standard, 20-20 hindsight reviews, cost recovery only in general rate cases
Efficient competition ("level playing field")	Flexible rates special contracts, value of service rates, unbundled pricing	Rigid embedded-cost rates, non-cost based rates, rates above marginal cost
Efficient consumption	Marginal-cost rates, time-of-use rates	Subsidies to certain customers, standard two-part rates, average-cost rates
Promotion of energy efficiency	Inverted rates, revenue decoupling, straight fixed-variable rates (utility initiated), performance incentives	Standard two-part rates, straight fixed-variable rates (customer-initiated), declining-block rates
Affordability	Inverted rates, rate discounts, percentage-of-income plans, low-income weatherization programs	Strictly cost-based rates, high customer charge, straight fixed-variable rates
Promotion of social objectives	Infrastructure surcharges or system benefits charges, above-cost rates to some customers	Strictly cost-based prices, no rate favoritism or other subsidies

Case Studies of Seven Nontraditional Rate Mechanisms

- Maine's Alternative Rate Plan
- Alabama's Rate Stabilization Plan
- Atlanta Gas Light's STRIDE program
- Wisconsin's future test year
- Utah's (Questar's) revenue decoupling plan
- Ohio gas utilities' straight fixed-variable rates
- California's inverted rates

Case Studies □ *continued*

- Generally favorable outcomes
- Two instances of where the commissions (Maine and California) are revisiting the rate mechanisms
- Some transitional challenges, which are expected
- Little empirical evidence on their overall effects over time