Incentive Ratemaking

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Concerns of Traditional COS Regulation

- Fixed base rates between general rate cases in spite of dynamic conditions
- Excessive regulatory lag jeopardizing a utility's financial health; for example, problems from delays in a utility's recovery of capital costs
- Regulatory lag deferring the benefits of utility efficiency gains to customers
- High regulatory costs; for example, frequent rate cases in a dynamic environment where the utility's average cost increases
- Weak incentives for long-term cost efficiency and innovation
- Utility discretion over the timing of rate cases
- Incentive for excessive capital investments
- Disincentive for utility-funded energy efficiency and distributed and energy resources

Ways for Regulators To Improve Utility Performance

- Competition (e.g., auction for wholesale power, retail competition for all customers)
- **Performance incentive mechanisms (PIMs)** or targeted incentives, such as partial pass-through fuel adjustment clauses and for energy efficiency
- Performance standards (e.g., reliability level, T&D losses, customer service)
- Retrospective reviews (e.g., compliance review, prudence review of a major project)
- Prospective reviews (e.g., review of a utility's risk management strategy or other proposed future activity)
- Regulatory lag (e.g., timing difference between cost incurrence and cost recovery)
- **Performance-based regulation (PBR)**, such as earnings sharing, price caps, multiyear rate plans

What Distinguishes PIMs and PBR from Other Approaches ?

- Formula-based
- Mitigates retrospective reviews
- Utility and consumers share the benefits (and costs) of utility performance deviating from a targeted or benchmark level

What Are PBR and PIMs?

- Ratemaking that explicitly allows utilities to recover certain costs based on their performance
- Specifically, it sets utilities' revenues or shareholder earnings based on specific performance metrics
- The intent, at least emphasized in recent efforts, is to give utilities stronger incentives to deliver value to customers and to advance certain public policy objectives

PBR/PIMs Come in Different Forms

- PBR is comprehensive in covering a wide scope of utility activities - for example, MRPs, price caps
- PIMs target a specific utility function, like energy efficiency, fuel costs, reliability, T&D losses, DER
- Many states are looking at different mechanisms, mostly the PIM type
- MRPs and price caps represent more radical departures from traditional COS regulation (widely used in other countries)
  - Fixed frequency of general rate cases
  - Attrition relief (e.g., index or detailed forecasts)
  - PIMs for certain functions

Example of a PIM

$$C_f = (g)\, C_a + (1 - g)\, C_b, \quad \text{or}$$
$$C_b + g\,(C_a - C_b)$$

where

C_f	=	costs flowed through to consumers
C_a	=	actual costs incurred
C_b	=	benchmark established by the regulator
(1-g)	=	% of cost savings utility retains
g	=	% of cost savings passed on to consumers

Price Cap Regulation

- CPI-X+K +Z
  - CPI – inflation
  - X – expected efficiency improvement
  - K – capital additions
  - Z - Exogenous factors out of control of the utility (e.g., taxes)
- Off-ramps
  - Under what conditions will the utility be able to return to cost-based regulation.

History of PBR and PIM

- Price Cap regulation first introduced in the U.K. and now used in several countries (Littlechild for British Telecom)
- Rarely used in the U.S. for energy utility industries
- Early PIMs applied to fuel costs and power plant performance (e.g., partial pass-through fuel adjustment clauses)
- Currently increased interest in the U.S. for both PBR and PIMs

The Meaning of Performance

- Outcome of single action or collective actions
- Not the same as consequences; improved performance is only good when it promotes the public interest ("can have too much of a good thing")
- Different applications of performance metrics (e.g., for monitoring a utility's performance, for incorporating into a PIM)
- *Ex post* and *ex ante* performance metrics and evaluation
- Evaluating performance requires some reference point or benchmark ("standard performance")

The Meaning of Performance – *continued*

- *Performance depends on two broad factors*:
  - Management behavior
  - Market and business conditions, and other factors beyond the control of a utility
- *Performance can relate to*:
  - Reliability
  - Safety
  - Customer satisfaction
  - Utility financial health
  - Energy efficiency
  - Costs
  - Plant performance
  - Innovation
  - Asset management

Creating Robust Incentives for Improved Performance

- Regulatory lag and "externalization" of costs
- For capital costs, the risk of imprudent disallowances, cost reporting, regulatory oversight and monitoring (planning and project management), regulatory lag in cost recovery, cost caps, and the distribution of cost variances (actual costs minus projected costs)between utility shareholders and customers
- Difficult to balance strong incentives for cost management with utility financial viability
- For non-cost functions, the setting of standards to evaluate a utility's actual performance and, subsequently, conduct further review, assess a penalty or grant a reward, or both
- *Symmetrical incentives*: The risk of a financial penalty for poor performance balanced against the opportunity for a financial reward if performance is exceptionally good

Reasons for the Recent Interest

- New public policy goals and objectives, and new technologies
- Utilities have incentives that can clash with those goals and objectives
- For example, they may have incentive to encourage capital expenditures even when they may not be the best alternative from the perspective of customers
- Utilities may have inadequate incentives to advance new technologies that would benefit customers and society as a whole
- Push from some utilities to recover capital expenditures more promptly and with more certainty
- Overall, given present incentives, utilities may fail to direct their actions toward the public good

Objectives and Potential Benefits

- The presumption is that higher performance would lead to customer/societal benefits
- The intent is align customer/societal benefits and utility benefits, which may fail to exist under present incentives (create a win-win outcome)
- An objective is to increase the value of electric service to customers; customers have become more empowered and demanding
- Rates should correlate more with the value customers receive from electric service than with a utility's actual costs: Did customers receive value commensurate with the rates they pay?

Challenges

- Choosing a preferred incentive mechanism
- Selecting the proper performance metric
- Finding the proper benchmark or reference point (e.g., peer group, a utility's past performance)
- Conflict between different objectives
- Asymmetric information
  - Regulators observe outcomes
  - Utility can inflate costs used as basis of establishing rates
- Sizes of rewards and penalties
- Measuring and verifying the benefits

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