INCENTIVE REGULATION

Regulation for Practitioners

Building Capacity through Participation

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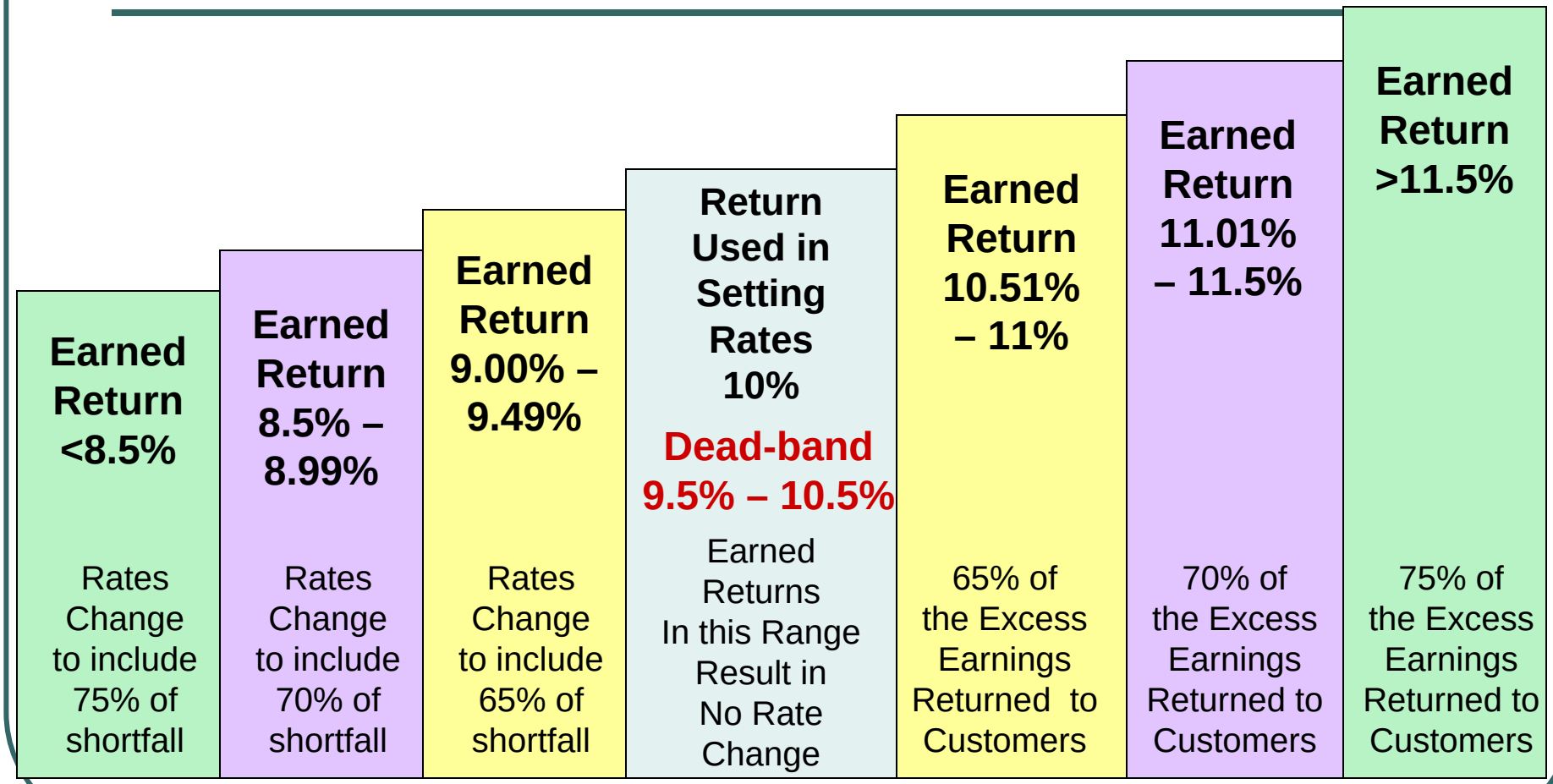
Banded Rate of Return

- Regulator specifies, at the beginning of period rates will be in effect, an acceptable range that the earned return must fall within
  - If earnings exceed the range, then some specified portion must be returned to customers
  - If earnings fall below the permitted range, then customers are generally required (through increases in rates) to make up a portion of the shortfall
  - Prices are initially established to be within the permitted range
- Goal
  - Encourage provider to reduce costs so can keep portion of cost reduction gains
- Reality
  - Still need to argue about which costs are reasonable
  - Service quality may decline as costs cut to increase profits

Example of Banded Rate of Return



Earnings Sharing

- Similar to Banded Rate of Return but usually specify the band in currency ($) rather than return rates (%)
- Usually includes a dead-band range for earnings
  - If earnings fall within dead-band, no changes are made
  - If earnings greater than ceiling of dead-band, some portion is returned to customers (may be on a sliding scale)
  - If earnings less than floor of dead-band, rates may be increased to make up portion of the shortfall
- Goal
  - Encourage more efficiency in expenditures and greater productivity in operations
- Reality:
  - Costs of goods and services used in utility operations are generally increasing -- so greater probability that the provider's earnings will fall short rather than be above the dead-band

Price Freeze

- Prices are not allowed to change within a defined period of time
- Rate review occurs at the end of the defined period
- Often implemented in conjunction with changes in market structure (e.g., introduction of competition)
- Goal
  - Set a price standard for the market and hope competitors come in at or below that standard
  - Encourage efficiency
- Reality:
  - Price increases at the end of the freeze period have often been very large causing citizen and political discontent
    - Are smaller more periodic increases better than less frequent larger increases?

Tariff (Price) Filing Moratorium

- Often a simple agreement not to file for a change in the tariff price during a specified period
  - May be a trade-off for a little larger tariff price now to stay out for designated period (promote price stability)
- May or may not involve agreement that price monitoring will be suspended during the agreement period, eliminating the risk to utility of price reductions
- Goal:
  - Impose regulatory lag so cost increases responsibility of the owners (investors) not the customers
- Reality:
  - Often provides rate stability by postponing required rate increases
  - May be creating incentives not to make necessary investments or expenditures (e.g., repairs) during period of freeze

Price Caps

- An initial price is set and then is adjusted only for changes in inflation (or some other escalator) and productivity gains
  - Other cost increases are not recognized in the tariff price
- The formula is often put in place for a pre-established time period
  - At the end of the period, the initial price may be re-established after a full regulatory review
- Goal
  - Encourage productivity improvements and cost reductions
- Reality
  - Often initial prices are set as part of liberalization or competitive process without knowing the costs of providing service or the appropriateness of the profit levels included in the initial price
  - Difficult to implement if in a period of high growth and / or a period where large capital investments are needed

Example of Price Cap

$$P_1 = p_0 (1 + cpi - x) + z$$

Price = initial price x (1 + inflation – productivity) + exogenous costs

Simple?

NO

How is the initial price established?

What inflation index should be used?

How are productivity efficiencies measured?

Should any externally driven, uncontrollable exceptions be allowed?

Should also include some service quality standards or targets in the plan!

Inflation Indices (CPI factor)

- Many use only one general escalation factor but they may or may not correspond to the provider's costs of operation
  - Consumer Price Index (CPI)
  - Producer Price Index (PPI)
  - Gross Domestic Product Implicit Price Deflator
- Industry Specific Escalation Factors
  - No federally issued industry specific index but there are some by private companies for sale
- Some have suggested that there should be different factors for different elements of cost
  - One suggestion
    - One for capital related services
    - One for labor only services
    - One for miscellaneous other inputs

Productivity Gains (X factor)

- Productivity measures how well inputs are turned into outputs
- Total Factor Productivity
  - Measures items such as reductions in employees, automation (e.g. automated metering), increased sales with small marginal cost (increased off-peak sales) and economies of scale
    - Best to measure using sample of other utilities
    - May be difficult to find data that is comparable and appropriate especially the capital-related inputs
- Cautions
  - Use of historical trends may not be representative of the future
  - Be careful not to create incentives for sub-optimal decisions
- May include a *stretch factor*
  - Adds amount to the productivity factor to provide additional benefits to customers (used to ensure some benefit for customers)
  - Making up for past inefficiencies

Exogenous Costs (Z factor)

- Recognizes costs that are beyond the provider's control
  - Government imposed mandates that are not government funded (e.g., change in tax rates)

- Characteristics of exogenous costs
  - Event occurred after price cap put in place
  - Event effects the utility disproportionately (e.g. CO_2 caps)
  - Cost not already explicitly or implicitly (such as through the inflation / escalation rates) included in the other elements of the plan

Performance Based Regulation

- Allowed earnings level dependent on operating performance (not financial) of specified items -- could be one factor or combination of items
- Incentive provided through increased return or revenue or rates for good performance; decrease for bad
  - When set baseline rates, need to make sure that establish proper expense levels for items that are to be measured
    - Example: if plant keeps going out of service due to reduced maintenance expenditures and want to focus on outages as a performance factor, make sure that maintenance expense in rates is at a level where expectations can be met
- Goal
  - Assure that service / operating quality does not decline
  - Try to fix a problem area of operations
- Reality
  - Provider will focus on the item that is spelled out for special compensation
  - Difficult to measure if any exceptions for extraordinary circumstances are allowed (e.g., unusual weather)

Example of Performance Based Regulation

Measure	*Weight*	*Incentive or Penalty*
Outages	40%	$6 million
Distribution Losses	6.7%	$1 million
On Cycle Meter Reads	6.7%	$1 million
Customer Satisfaction	20%	$3 million
Timely Call Answering	6.7%	$1 million
Complaints to Regulators	6.7%	$1 million
Lost Work Time Accidents	13.3%	$2 million

Based on earlier plan for Massachusetts Electric Company (circa 2002)

Pass Through of Costs

- A category of cost may be singled-out for special treatment
  - The rates will be modified to incorporate changes in these costs between general price reviews (monthly, quarterly, or annually)
- Historically, the costs had the following characteristics
    - Beyond the company's control
    - A significant portion of the overall operating costs or have a significant impact on earnings
    - Unpredictable and with wide fluctuations
  - Primarily the pass-on costs involved generating fuel, purchased power, and wholesale natural gas
- Now, using these mechanisms to pass-on costs and track the costs uniquely from the other operating costs
  - Using to separately track and recover the costs of
    - Demand-side Management / Energy Efficiency Programs
    - Renewable Investments

Pass-through of Costs (continued)

- Some pass through tariff mechanisms state that no profit can be included with the cost that is being adjusted
- Some authorities pass on 100% of the specially identified cost category, and record the cost in its own cost account to assure that no more and no less than the cost is passed-on to customers
- Other authorities insist that a portion of the cost increase or decrease be shared by the investors so that customers may only pay 80-90% of the cost increase and share in cost decrease
  - Provides incentive to provider to reduce cost since shareholders are able to keep a portion of the cost decrease
- Provides for timely recovery of costs compared to normal rate case or full cost of service review
  - Many argue it reduces the risk to investors since costs have greater assurance of recovery

Incentives for New Infrastructure

- Tax Incentives
  - Use of shorter depreciation lives for computing income taxes due to taxing authority
  - Income tax credits for making certain types of investments
    - Example: renewable generation
  - Property tax incentives for new generation
- Debt / Equity Based Incentives
  - Higher authorized return on equity
  - Use a hypothetical capital structure (versus actual) to compute allowed profit levels
    - If assume more equity and less borrowing (debt), allowed return will generally be greater, since the return on equity is usually larger than the cost of borrowings

Incentives for New Infrastructure (continued)

- Cost Recovery Assurances
  - Begin recovery of construction costs during construction period rather than waiting for project to be completed
  - Allow recovery of prudently incurred costs of projects that are not completed due to factors beyond control of the utility
- Regulatory Process Changes
  - Modify the prudence standards from “least cost” to “reasonable cost”
  - Only allow facts available at the time of the construction decision to be used when making the regulatory prudence decision
  - Make prudence review and cost recovery determinations earlier in the regulatory process

Discussion Questions

- How do the various pricing methods impact the amount of risk borne by customers versus the risk to the investors?
- What are the major pricing and operational concerns that you want the incentive plan to address?