Mission Statement:

The UTC protects consumers by ensuring that utility and transportation services are fairly priced, available, reliable, and safe.

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Theory of Rate Base, Rate of Return Regulation and Overall Revenue Requirement

Prepared for the Kyrgyz Republic SEA

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Characteristics of a "public utility"

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A Natural monopoly

- Exists where the technical conditions of production lead to lower unit costs with increasing levels of output within its legally and/or economically restricted market areas, and
- The Economies of scale are such that a single firm can supply the entire market at a lower cost than can two or more firms. That is, a duplication of infrastructure leads to greater overall cost.

Characteristics (continued)

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- The public utility's service is important, essential, vital, and perhaps a necessity of life today.

- A public utility is capital intensive. It's investments are expensive, durable, and "lumpy". There are high fixed costs and a high sunk cost of capital outlays.

- A public utility sells services, which ordinarily cannot be stored, rather than goods.

- A public utility's costs can vary by time of use and consumers have daily, periodic, and seasonal demands.

- Public utilities are normally granted partial or complete territorial rights.

Objectives of Ratemaking

The main objective of regulation is to protect the public interest where markets fail.

Ratemaking determines

- a utility's total revenue requirement,
- assigns or spreads that revenue requirement to the different classes of customers served by the utility, and
- establishes a rate design that will allow the company a reasonable opportunity to collect its revenue requirement.

Objectives of Ratemaking
(continued)

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At the same time, rates must be sufficient to allow investors the opportunity to earn a fair return on their invested capital.

A Commission ensures that rates are set high enough for a well-managed company to make needed investments in service and earn a return comparable to investments of similar risk.

Is ratemaking an art or a science?

Ratemaking is still considered an art as opposed to a science despite its long existence due to the vast amount of judgment is involved in setting rates. However, ratemaking very heavily relies on the sciences.

Rates are evaluated on a fair, just, reasonable standard.

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There is a distinction between the traditional legal standard of reasonable rates and the standard of optimum rates often set forth as the ideal of public utility rate theory.

The law accepts results that are merely satisfactory, whereas economic theory seeks attainment of the ideal.

Test Year versus Test Period

These terms are often used interchangeably. The distinction between the two terms is:

- The test year is a measure of the operations and investment from some specified twelve-month period. It should be viewed as the raw data.
- The test period is a measure of, or is representative of, conditions during the period of new rates. The test period is a forecast, whether based upon historic data or projections.
- A test period is sometimes referred to as a rate year.

Test Year

Selection of a test year is a significant factor in the rate-making process.

The more outdated the test year, the more critical the need for significant restatement to produce levels representative of future conditions.

Test Periods

- As the basis for setting rates in the future, the development of adequate test period data is crucial to the outcome of the regulatory process.

- The end result needs to be representative of costs to be incurred in the future. An important concept is that it is the ratio of revenues to expenses to rate base that determines the adequate level of revenue requirement.

- If the data do not reasonably express operating conditions for the period in which the rates will be in effect, the rates will not function as intended.

Test Year

A Test Year is typically based on data from one of the following:

- Actual historic data adjusted for certain factors,
- Current data (partial historic and partial projected) or,
- Projected data.

Test Period

- Considerable judgment is involved in looking at the past, through the present, and into the future to set rates for future use.

- Reasonable people may, and likely will, disagree on the future.

Historic Test Year with Restatement

- When conditions are in a state of change, historic results are likely to be an unreliable source of test period data as a basis for measuring future rate needs.
- In theory, as imprecise as forecasting may be, projected test year data based on reasonable forecasts should consistently come closer to expressing future conditions than purely historic data will.

Adjustments to Historic Data

Restating Adjustments adjust the booked operating results for any defects or infirmities that may exist in actual results that can distort test period earnings.

Proforma Adjustments are adjustments that give effect to the test period for known and measurable changes that are not offset by other factors. The goal of proforma adjustments is to maintain the test year ratio of sales and rate base, but to allow known and measurable changes to the inputs.

A Future Test Year

- A future test year is based on projections of expenses one to two years into the future.

- The main problem with forecasted data is the controversy over models and assumptions.

- Statutory time constraints impact the ability to thoroughly analyze models and evaluate assumptions.

Rate Base

- **Definition** – Rate base represents investor-supplied plant facilities and other investments required to supply utility service to consumers.

- It is the amount to which the rate of return is applied to arrive at the capital cost component of the total cost of service.

- The most significant piece is usually plant-in-service.

Methods to Value Rate Base

- Regulatory statutes and case law generally require that investors be permitted the opportunity to earn a reasonable return on the **value** of their investment in rate base.

- Value is a word of many meanings.

- Most common are “investment cost” and “fair value”.

Methods to Value Rate Base (continued)

- Investment cost generally limits the plant included in rate base to the "original cost" of the facilities.

- The Federal Energy Regulatory Commission's Uniform System of Accounts defines original cost as "the cost of such property to the person first devoting it to public service."

Rate Base Values – Average or Year-End

Rate Base is most often averaged over a 12-month period and compared to the results of operations for the same period to produce a matching of the rate base investment with the revenues generated by the investment and the costs incurred in the process.

Year-end rate base has the effect moving the test year forward by a full six months.

Setting the Level of Profitability

- The level of a utility's profit is known as "rate of return on rate base." It has become one of the most controversial parts of a rate case because of significant dollars involved. This is a result of the vast amount of plant necessary to provide service.

- While an individual rate of return may be reasonable at one point, it may (likely will) become too high or too low as a result of changes in the investment community or the general economy.

Conclusion

- The objective of rate base / rate of return ratemaking is to determine rates which give the utility the opportunity to recover its costs and to earn a fair, just, reasonable, and sufficient return on its investments devoted to public utility service.
- Specific costs or levels of costs are not guaranteed to be recovered.