HANDOUT D

Analysis of Rate Elements in a Regulatory Price Review

Revenue Requirements, Rate Base and Cost of Capital – Analysis and Process

Presentation Outline

- Revenue Requirements
- Rate Base (Regulatory Asset Base)
- Rate of Return / Cost of Capital

Revenue Requirement Definition

- A utility revenue requirement is the sum of all costs incurred by a utility to provide safe and adequate service to its customers during a period of time, typically a one-year period ("Test Year").
- These include all operating expenses a utility incurs plus a return on the assets (or "Rate Base") used to provide this service.
- Also known as "Cost of Service"

Revenue Requirement Formula

$$RR = OE + T + D + r(RB)$$

RR = Revenue Requirement
OE = Operating Expenses
T = Tax Expenses
D = Depreciation Expense
r = Rate of Return on Rate Base
RB = Rate Base (or, Assets)

Operation & Maintenance Expense

- Payroll
- Advertising
- Insurance
- Conservation
- Research and Development
- Legal Costs
- Repairs and Maintenance (e.g., tree trimming)
- Mandated program costs

Projected O&M Expenses

- Historical Level from "Test year" is adjusted in several ways:
  - Known Changes
  - Annualization of part year changes
  - Normalization of unusual events
  - Forecasts of new or expiring programs

Return

Costs Related to the Return Of and On Investments in Utility Plants.

- Depreciation on Utility Plant Investment
- Taxes
- Rate Base
- Cost of Capital to Finance Investment

Depreciation Expense

- Depreciation Expense is the way the return of investment is captured in rates.
- The assets in which a company invests are brand new only on the day they are bought. After that they begin to age and their value to the company declines.
- Depreciation: the annual cost associated with the diminution in the usefulness of an asset over time.
- Utility assets, particularly pipes and wires, have long useful lives (30-50 years).

Taxes

- Federal and State Income Taxes
- Payroll Taxes
    - Social Security Taxes
    - Unemployment Insurance
- Property Taxes

Rate Base (Regulatory Asset Base)

- Utility Plant
  - Original Cost Limitation
  - Used and Useful
- Accumulated Depreciation Offset
- Customer Advances for Construction
- Deferred Income Taxes Offset
- Working Capital Assets

Rate Base (Regulatory Asset Base)

Rate Base =

A. Original Cost of Utility Plant
B. Less Accumulated Depreciation
C. Plus Deferred Debits
D. Less Deferred Credits
E. Less Customer Advances for Construction
F. Plus Working Capital
G. Less Earnings Base versus Capitalization Adjustment if a Utility's Outstanding Securities are less than the Rate Base Calculated through Step F

Used and Useful

- Plant that is included in rate base should both be completed and be necessary to provide service. This is generally referred to as “in-service”.
- Plant which is far in excess of the customers’ needs or is non-utility in nature is usually not part of rate base.

Fair Rate of Return Theory

- A return is provided on rate base
- The return covers debt costs (which are generally known) and the cost of equity
- The Cost of Equity or Return on Equity (ROE) is set considering returns available from investments with comparable risks
- Return sufficient to attract new capital
- Return sufficient to maintain creditworthiness (goal is a low “A”/ high “BBB” Bond Rating)

Weighted Average Cost of Capital (WACC)

RATE OF RETURN MATRIX-Pro Forma				
Type	**Dollars**	**Percent**	**Cost**	**Weighted**
Debt	$ 550	55.0%	**6.50%**	3.58%
Equity	$ 450	45.0%	**9.50%**	4.28%
Total	**$ 1,000**	**100.0%**		**7.85%**

- A weighting of costs is made based on the appropriate utility capital structure.
- The cost of debt (Rd) can usually be determined with more precision.
- The cost of equity (Re) must be estimated using various financial models designed to measure the return on equity that investors require on the stock of a particular company.

Measuring the Cost of Equity

- There is no contractual or stated rate of return on common equity.
- Unlike debt which has a fixed contractual rate, the return that investors desire on common equity will vary with market conditions.
- Thus, the cost of equity for a utility must be estimated.
  - Over the years financial experts have developed and relied mainly on three types of approaches.
    - Comparable Earnings
    - Discounted Cash Flow (DCF)
    - Interest Rate Spread Studies