Revenue Requirement 101

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*The opinions expressed are our own and do not necessarily represent the views of our respective offices.

NASUCA Accounting Committee Training Series Vision

- Revenue Requirement 101 – March 31, 2022
- Rate of Return– TBD
- Cost Allocation / Rate Design – TBD
- Taxation – TBD
- Witness Preparation – TBD

Utility Regulation

- Utilities are natural monopolies.
- Therefore, traditional market forces cannot dictate utility rates.
- Regulation serves as a substitute for competition, particularly for Investor-Owned Utilities (IOUs) that have no embedded "brake" on the potential abuse of monopoly power.
- Consumer Counsel offices advocate for broad consumer interests in the regulatory process that otherwise may go unrepresented.

Utility Regulation

- Role of Regulation
  - Utilities are natural monopolies but regulation should protect consumers by preventing abusive monopolistic power (i.e. high prices and poor service).
  - *"In short regulation is a substitute for competition and should attempt to put the utility sector under the same restraints competition places on the industrial sector."* Charles F. Phillips – *The Regulation of Public Utilities: Theory and Practice*, (Arlington, VA: Public Utilities Reports, Inc., 1984), p. 154

Why we regulate the way we do…

- Regulation as a substitute for competition
  - "…regulated utilities exist within and are important to the overall economy, regulation of public utilities cannot be divorced from the operating logic of competition in the rest of the economy." (NARUC – *Primer on Public Utility Regulation for New State Regulatory Commissioners,* April 2003, p. 2)

Utility Rate Setting Process

- Step 1: Determine the revenue requirement
  - Revenue Requirement: Annual amount of revenue that a utility must collect to cover its operating expenses and provide a return of and on the capital employed to provide service.
- Step 2: Cost Allocation
  - Allocate the revenue requirement among customer classes.
- Step 3: Rate Design
  - Design rates to collect each class's portion of rev. requirement

Revenue Requirement

Cost Allocation

Rate Design

Test Year

- Test Year: Annual period used to determine the cost components and their dollar amounts to include in the revenue requirement. Utility service usage levels and characteristics from that period for each rate class will also be used in cost allocation and rate design.

Types of Test Year

- Historical
  - Based on previous year's actual financial results
  - i.e. Jan. 1, 2021 – Dec. 31, 2021
- Partially Projected or Adj. Historical TY (Hybrid)
  - Based on previous year's actual financial results and adjusted to include known and measurable changes occurring for a pre-determined number of months after the test year.
  - i.e. Jan. 1, 2021 – Dec. 31, 2021 + known and measurable changes through Sept. 30, 2022.
- Fully Projected Future Test Year
  - Based on forecasted expenses and capital investments expected to occur in the next year.
  - i.e. Jan. 1, 2023 – Dec. 31, 2023

Components of the Revenue Requirement

$$\textit{Revenue Req.} = (RB)r + OE + D + T$$

- Rate Base (RB)
- Rate of Return (r)
- Operating Expenses (OE)
- Depreciation Expenses (D)
- Taxes (T) – income and other

Revenue Requirement Calculation

Rate Base	$500,000	Rb
Rate of Return	7.50%	r
Required Operating Income	$37,500	
Operating Expenses		
Salary and Wages	$10,000	
Office Expenses	$3,000	
Maintenance Expenses	$4,000	
Production Expenses	$5,000	
Distribution Expenses	$4,000	
Miscellaneous Expenses	$5,000	
Total Operating Expenses	$31,000	OE
Depreciation Expense	$15,000	D
Other Taxes	$3,000	
Federal Income Taxes	$5,000	
State Income Taxes	$2,000	
Total Taxes	$10,000	T
Total Expenses	$56,000	
Total Revenue Requirement	$93,500	

Revenue Requirement Components

- Rate Base
  - Source: Balance Sheet
  - Represents investor supplied capital supporting utility plant and other investments.
- Primary Rate Base Accounts
  - Utility Plant in Service ("UPIS") used for the provision of utility service
  - Less: Accumulated Depreciation ("AD")
    - UPIS – AD = Net Plant
  - Accumulated Deferred Income Taxes
  - Working Capital
  - Prepaid Expenses
  - Contributions in Aid of Construction
  - Customer Advances
  - Materials and Supplies

Rate Base Example

Gross Utility Plant in Service	$1,000,000
Less: Accumulated Depreciation	($400,000)
Net Utility Plant in Service	**$600,000**
Add	
Cash Working Capital	$5,000
Prepayments	$15,000
Materials and Supplies	$35,000
Total Additions	**$55,000**
Deduct	
Accumulated Deferred Income Taxes	$130,000
Customer Advances for Construction	$10,000
Contributions In Aid of Construction	$5,000
Miscellaneous Deductions	$10,000
Total Deductions	**$155,000**
Total Rate Base	**$500,000**

Rate Base

- Considerations in Calculating Rate Base
  - Utility Plant In-Service ("UPIS") – must be "used and useful" and prudently incurred: is UPIS in service and being used for the purpose of providing utility service in the test year?
  - 13-month Average or Year-End Rate Base – should rate base be averaged or determined by the balances at the end of the test period?
  - Prudency – is the investment necessary to provide safe, reliable, reasonably priced utility service or is the utility "gold-plating" expensive investment to grow earnings through investment growth?
  - Cash Working Capital Balances – simple 1/8th method or Lead-Lag Study?
  - Allowed Acquisition Premiums – Original Cost vs. Fair Market Value.

Rate of Return (Reasonable)

- Equal to the Utility's Weighted Average Cost of Capital ("WACC")

Capital Structure		Ratio	Cost Rate	Weighted Cost
Debt	$50,000	50%	5%	2.50%
Equity	$50,000	50%	10%	5.00%
Total	$100,000	100%		**7.50%**

WACC

- Hypothetical figures for demonstrating calculations.
- Actual return on equity to be determined in a rate proceeding.

Operating Expenses

- Source: Income Statement
- Typically begins with utility annual report and adjusts for **known and measurable** changes, normalizations, and annualization of expense changes.
  - Adjustments for known and measurable changes: salary increases, insurance premium changes, depreciation expense on new capital expenditures, etc…
  - Adjustments for normalization: necessary when the test year level of expense is materially different than historical results.

Normalization Example

- Review historical results and compare to the test year. Typically, larger variances are cause for greater investigation to determine if the variance is an anomaly or expected to continue.

Expense Account	$000s
2016 Actual	$2,500
2017 Actual	$2,300
2018 Actual	$2,800
2019 Actual	$3,100
2020 Actual	$1,900
2021 (Test Year Actual)	$4,700
2016-2020 Average	$2,520
Adjustment Necessary	($2,180)

Annualization Example

- Salary and Wage Increase of 3% implemented on July 1, 2021, of 2021 Test Year.

Monthly Salary and Wages Before Increase	$1,000	
Monthly Salary and Wage Increase (3%)	$30	*Adjustment to increase salary*
Months of Increase Not Included in the Test Year	6	*and wages to reflect a full year*
Annualized Salary and Wage Increase	$180	*of salary increase for $180,000*

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Actual	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,030	$1,030	$1,030	$1,030	$1,030	$1,030	$12,180
Annualized	$1,030	$1,030	$1,030	$1,030	$1,030	$1,030	$1,030	$1,030	$1,030	$1,030	$1,030	$1,030	$12,360
Adjustment													$180

Income Statement Consumer Perspective

- Compare historical expenses with test year expenses. (Investigate and normalize when necessary)
- Determine whether expenses should be recovered by ratepayers (above the line) or borne by shareholders (below the line) based on the respective statutes and/or rules of the jurisdiction.

Income Statement Consumer Perspective

- Examine and investigate these categories to determine if ratepayers should pay for all or any of these expenses.
  - Incentive Compensation (especially those driven by financial metrics)
  - Supplemental Executive Retirement Plans
  - Board of Director Fees
  - Board of Director's Travel Fees
  - Severance Pay
  - Executive Vehicles
  - Corporate Aircraft Expenses
  - Electric Vehicle Rebates
  - Inflation Adjustments (examine historical trends)
  - Director and Officer Liability Insurance
  - Industry Dues (EEI & AGA) – lobbying component and potentially non-lobbying advocacy from these groups
  - Non-Industry Dues (i.e. Chamber of Commerce dues)
  - Sponsorships
  - Employee gifts for recognition
  - Any expenses associated with non-regulated operations or businesses that the utility or a parent company may own

Adjusted Operating Income Statement

	$000s	Test Year	Total Adjustments	Adj. Income Statement	Increase	Adj. Inc. Stmt After Increase
1	Operating Revenues	$92,500	$1,000	$93,500	$10,181	$103,681
2	Operating Expenses	$44,800	$2,000	$46,800		$46,800
3	Maintenance Expenses	$2,000	$500	$2,500		$2,500
4	Depreciation Expenses	$5,000	$1,000	$6,000		$6,000
5	Taxes other than Income Taxes	$2,000	$500	$2,500		$2,500
6	Federal income Taxes	$2,000	($600)	$1,400	$1,994	$3,394
7	State Income Taxes	$1,000	($200)	$800	$687	$1,487
8	Deferred Income Taxes	$3,000	$500	$3,500		$3,500
9	Total Operating Expenses	$59,800	$3,700	$63,500	$2,681	$66,181
10	Net Operating Income	$32,700		$30,000	$7,500	$37,500

Revenue Gross-up

- After calculating a deficiency between the required operating income (rate base x rate of return) and the adjusted operating income, the difference must be grossed up for taxes.

Gross-up Equation = 1/(1-tax rate)		
Combined Rate	Federal	Iowa
Pre-tax Revenue	100,000	100,000
		100,000
Apportionment %		100.0000%
State Taxable Income		100,000
State Income Tax Rate		6.75%
State Income Tax		6,750
State Credits		
State Income Tax after Credits	(6,750)	6,750
Federal Taxable Income	93,250	
	21%	
Federal Tax	19,583	
Federal Credits		
Federal Tax after Credits	19,583	
Total Taxes	26,333	26.333%
Rates	19.5825%	6.7500%
Gross-up Equation = 1/(1-tax rate)		
Gross Up Factor	1.357451	

Calculating the Revenue Requirement

			Source	
1	Rate Base	$500,000	Rate Base Calculation	
2	Rate of Return	7.50%	WACC	
3	Required Operating Income	$37,500	Line 1 x Line 2	
4	Adjusted Operating Income	$30,000	Adjusted Income Statement	*Includes Op. Ex, Dep, & Taxes*
5	Revenue Deficiency	$7,500	Line 3 - Line 4	
6	Gross-Up Factor	1.357451	Previous Slide	
7	Total Additional Revenue Required	$10,181	Line 5 / Line 6	
8	Previous Revenue Requirement	$93,500	Prior Calculation	
9	Total Revenue Requirement	**$103,681**	Line 7 + Line 8	
10	Percentage Increase	**10.89%**	Line 7 / Line 8	

Questions