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Natural Gas Rate Regulation

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Gas Ratemaking Topics

- Rate Case Process – Thomas Dvorsky
- Rate Case Issues – Thomas Dvorsky
 - Revenues
 - O&M Expenses
 - Depreciation
 - Taxes
 - Rate Base
 - Rate of Return
- Cost of Service Studies – Kim Wissman
- Revenue Allocation and Rate Design – Thomas Dvorsky



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Rate Case Process



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Total Revenue Requirements

- Rates charged for gas services must be sufficient to recover total costs in order to remain viable
- The Regulatory Commission determines the level of revenues necessary for a distribution company to earn a fair rate of return



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Rate Case Process

- Company files a rate case (direct testimony and exhibits) with tariff changes
 - Requests suspended until Commission action (11 month litigated proceeding)
- Field Investigation, Data Requests, Interrogatories
- Public Hearing
- Cross-examination of Company
- Direct Testimony of Staff and Intervenors



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Rate Case Process (cont'd)

- If settlement...
 - Settlement negotiations may occur at any time with notice to reach agreement on issues and avoid litigation
 - Multi-year agreements also can be reached through the settlement process
- If fully litigated...
 - Initial and Reply Briefs to the Administrative Law Judge (ALJ)
 - ALJ's Recommended Decision
 - Briefs on Exception, Replies to Exceptions
 - Commission Order



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Rate Case Filing – First Review

- Future Year Ratemaking Policy
 - Historic Test Year – actual data not older than 150 days
 - Future Rate Year – conditions as forecast to exist in first year of new rates
 - Link period between the two
- Past Decisions and Orders
 - Utility's most recent Commission Order setting rates
 - Generic Proceedings
 - Policy Statements
- One Year Case versus Multi-year Case
- Major versus Mini Rate Case
 - Major: Greater than 2.5% of revenues, Hearings required
 - Minor: Less than or equal to 2.5%, No hearings required



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Rate Case Issues



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Rate-making Overview

- $\text{Revenues} - \text{Expenses} = \text{Net Income}$
- $\text{Net Income} / \text{Rate Base} = \text{Rate of Return}$
- $\text{Revenue Requirement} = \text{Expenses} + \text{Rate of Return} \times \text{Rate Base}$



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Rate Case Issues

Revenues

- Sales and Transportation
 - Growth in Customers
 - Use per customer
 - Weather Normalization
- Other Revenues, e.g. late payment charges
- Purchased Gas Expense
 - Gas Purchasing Practices
 - Gas Cost Incentives
 - Matching Gas Cost Recoveries and Gas Costs Incurred
 - Lost-And-Unaccounted-For (LAUF) Gas
- Gross Receipts Taxes
- Net Revenues/Margin



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Rate Case Issues (Cont'd)

Operation and Maintenance Expenses

Definition: The cost of operating and maintaining gas plant and providing utility service

- Pro Forma Adjustments
- Normalization
- Annualization
- Attrition
- Activity Units versus Elements of Cost
- Examine Major Programs, e.g. gas leak surveys



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Rate Case Issues (Cont'd)

Operation and Maintenance Expenses

- Examine Major Activities by Type of Work, e.g. leak repairs, interference, cathodic protection
- Deferred and Uncontrollable Costs
- Research and Development – Internal and External
- Gas Marketer Issues
- Gas Safety Incentives
- Customer Service Quality Incentives
- Retail Access, Outreach and Education Incentives
- Low Income/Affordable Energy Programs



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Rate Case Issues (Cont'd)

Depreciation

Definition: Loss in service value not restored by current maintenance

- Calculation of annual and accrued depreciation based on straight line method requires the estimation of survivor curves and the selection of group depreciation procedures and characteristics



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Rate Case Issues (Cont'd)

Depreciation Studies

- Mortality Study
 - Use history of plant retirements to determine Average Service Life and Survivor Curves
 - Insufficient retirement data requires that analyst use best judgment in determining average service life and mortality characteristics of such plant account
- Net Salvage Study
 - Today's Cost of Removal far outstrips Original Cost of Installation – leads to high negative net salvage rates
- Book versus Theoretical Reserve Study
 - Compare book reserve (actual) to theoretical reserve (calculated) using average service lives, survivor curves, and net salvage rates determined by studies and best judgment of analyst
 - Amortization of book reserve that is greater than 10% excess or deficient when compared to theoretical reserve



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Rate Case Issues (Cont'd)

Taxes Other than Income Taxes

- Payroll
- Property
- Gross Receipts
- Sales

Income Taxes

- Federal
- State



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Rate Case Issues (Cont'd)

Rate Base

- Original Cost, i.e. cost of plant when first dedicated to public service
- Used and Useful
- Plant In Service, Accumulated Reserve for Depreciation, Net Plant
- Construction Projects, Slippage, Budget versus Actual
- Construction Work in Progress, Interest Bearing, Non-Interest Bearing
- Common Plant Allocations



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Rate Case Issues (Cont'd)

Rate Base (Cont'd)

- Working Capital
 - Materials and Supplies
 - Cash Working Capital
 - Prepayments
 - Underground Storage of Gas
- Accumulated Deferred Income Taxes
- Accumulated Deferred Investment Tax Credits
- Earnings Base versus Capitalization Adjustment



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Rate Case Issues (Cont'd)

Rate of Return

- Primarily consists of: Debt, Preferred Stock, Common Equity
- Most controversial component in Revenue Requirement
- Opportunity to Earn, Not a Guarantee
- Incentives and Sharing Mechanisms



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Revenue Allocation and Rate Design



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Revenue Allocation and Rate Design

- Introduction
 - Revenue Allocation determines who should pay
 - Rate Design determines how they will pay



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Revenue Allocation and Rate Design

- Many factors are considered in determining the revenue allocation and rate design. (from Principles of Public Utility Rates by James Bonbright, Columbia University Press, 1961):
 - Cost of Service
 - Rate Stability
 - Revenue Stability
 - Historical Precedent
 - Customer Impact
- Equity, no cross-subsidization (“no undue discrimination”)
- Other factors include value of service, gradualism and social welfare considerations
- Apply all these factors with considerable judgment
- Rate Design is an “Art” not a “Science”



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Revenue Allocation Guidance

- Relative Rates of Return from Embedded Cost of Service (ECOS) study
 - Unitized rate of return by service class
 - Revenue Excess or Deficiency
- Comparative findings from Marginal Cost study
 - Tariff rates compared to marginal costs: above, below, equal
- Tolerance bands
 - With load studies, + or – 10%
 - Without load studies, + or – 20%
- Constraints and Guidelines
 - Service class impact (e.g. 1.5x system average)
 - % across-the-board net of gas costs (increases rate tilt)
 - Per unit across-the-board (maintains rate tilt)



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Cost of Service Studies

- Cost of service studies are only one of several ratemaking guides or tools
- Other factors must be taken into consideration when designing rates and allocating revenues



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Cost of Service Studies

- Some considerations before using Cost of Service Study results
 - Rationality of assumptions and inputs
 - Comparison with previous studies
 - Reliance on data
 - Tolerance Bands



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Rate Design

- Determining Rate Classes
 - How many classes are needed?
 - How should customers be grouped?
- Factors To Be Considered
 - Homogeneous loads
 - Size
 - Location
 - Diversity
 - Value of Service



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Rate Design

- Typical Customer Groups
 - Residential Domestic
 - Space Heating
 - Non-space Heating
 - Small General
 - Large General



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Rate Design

- Criteria of a Desirable Rate Structure
 - Simplicity, able to be understood
 - Effectiveness in yielding total revenue requirements
 - Revenue stability
 - Avoids undue discrimination
 - Price signal
 - Economic Efficiency and Impact
 - Social Concern
 - Gradualism



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Rate Design

- Other Considerations
 - Load Factor
 - Rate blending across service classes
 - Load research findings
 - Sales/Billing data
 - Tail block rate: in excess of marginal cost, plus contribution to system
 - Elastic vs. inelastic Load



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Rate Design

- Cost Bases
 - Embedded costs
 - Marginal costs
 - Value of Service
 - Alternate fuel cost
 - By-pass potential (physical or economic)
 - Related Considerations
 - Commission Policy Statements
 - Prior case opinions
 - Court cases
 - Generic and Special Proceedings



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Rate Design

- Rate Features
 - Structure
 - Flat vs. Blocked
 - Declining vs. Inverted
 - Demand vs. Energy or Commodity
 - Customer and Minimum Charges
 - Minimum Bill
 - Fixed vs. Flexible pricing
 - Floor vs. Ceiling price



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Rate Design

- Number and nature of different rates and charges by types of service
 - Gas Supply
 - Gas Delivery
 - Firm
 - Interruptible
 - Sales vs. Transportation
 - Seasonal Off-peak
 - Off-peak Firm (e.g., 335 days service)
 - Temperature Controlled (e.g. gas turned off at 15 degrees, back on at 20 degrees F)
 - Distributed Generation
 - Gas for Electric Generation
 - Natural Gas Vehicle
 - Air Conditioning
 - Standby
 - Balancing
 - Storage



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Rate Design

- Gas Supply Charge
 - Commodity Rate (including Merchant Function Charge)
 - Weather Normalization Clause
 - Annual Reconciliation of Gas Costs
 - Lost-and-Unaccounted-For Gas
 - Pipeline Refunds



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Rate Design

- Special Rate Forms
 - Economic Development Zones
 - Area Development Rates
 - Business Incentive Rates
 - Individual Negotiated Rates
- Discounted rates to encourage development in under-utilized capacity areas, or to retain customers who can by-pass distribution system