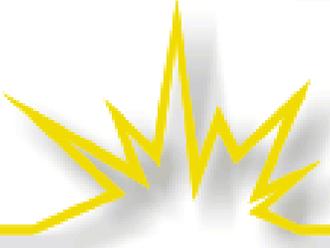


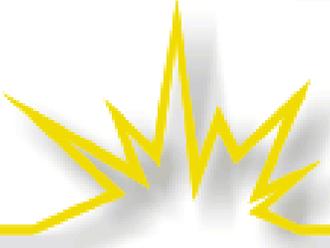
Revenue Requirement

- Determine OPERATING INCOME at Current Rates
 - Revenues, retail and other
 - Expenses, including taxes
- Determine the RATE BASE
- Estimate the required COST OF CAPITAL
- Compute revenue deficiency or excess



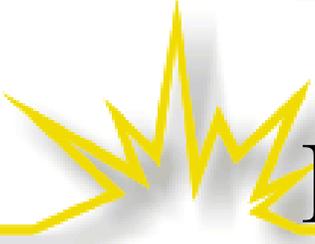
Expenses

- Per books expenses
- Restated and normalized
- Regulated / non-regulated entities
- Prudence; non-allowable expenses
- Pro forma changes



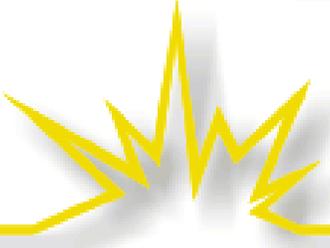
Non-Allowable Expenses

- Non-utility services
- Unregulated subsidiaries / parents
- Political Expenses - Contributions and Lobbying
- Charitable Expenses
- Costs of future services -- to be deferred and capitalized
- Fines / Penalties



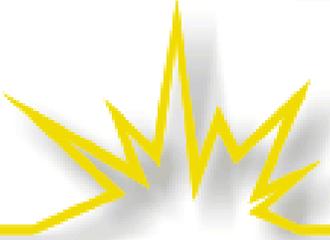
Depreciation and Amortization

- Depreciation a non-cash expense
- Amortization of regulatory assets
 - Conservation investments
 - Regulatory expenses
- Matching principle
 - Fully amortized past expenses removed
 - New investments add new depreciation



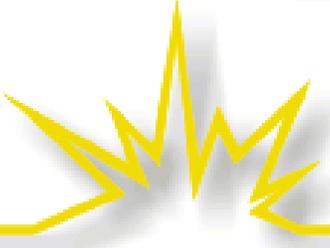
Deferred Accounting

- Fuel costs with fuel adjustment clause
- Conservation investments
- Set-up costs on debt
- Abandoned projects
- Customer Advances / Deposits



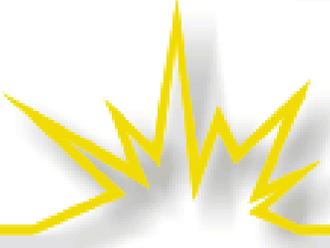
Deferred Taxes

- Differences in tax timing
- One-time losses amortized in rates over multiple years
- Investment tax credits
- Taxes on capital acquisitions immediately deductible



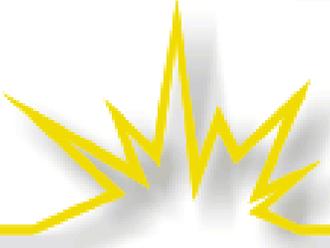
Adjusting the Taxes

- Every expense increase means lower taxes
- Every revenue increase means more taxes
- Deferred taxes/credits to be amortized
- Tax benefit of interest -- linked to rate base



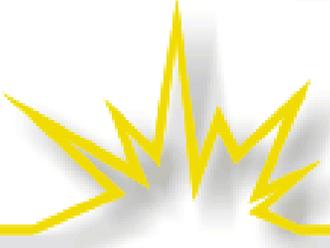
Rate Base Adjustments

- Accumulated depreciation
- Working capital
- Disallowed investments
- Fully amortized investments
- New investments



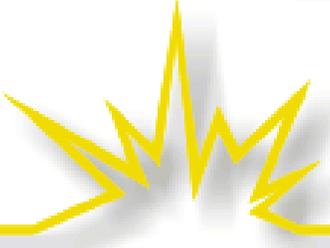
Adjusted Rate of Return

- Adjusted Revenues
- Adjusted Expenses
- Adjusted Rate Base
- $\text{Revenue} - \text{Expenses} / \text{Rate Base}$



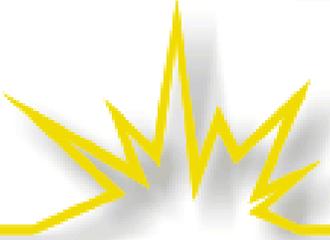
Revenue Deficiency

- NOI at Current Rates
- Required NOI
- NOI Deficiency
- Conversion Factor
- Revenue Deficiency



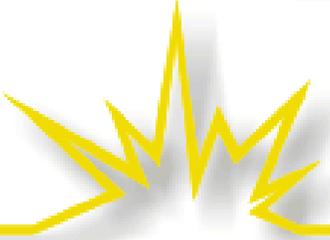
Overview of a Rate Case

- Income Statement
- Balance Sheet
- Cost of Capital
- Revenue Deficiency / Excess
- Cost Allocation
- Rate Design



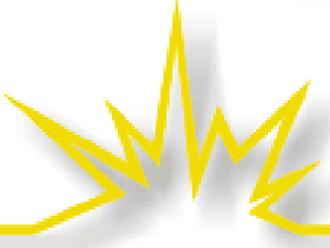
Income Statement

- Accepted Accounting Principles
- Uniform System of Accounts
- Utility Revenue and Expenses Only
- Adjustments to Revenues and Expenses
- Contested Issues
- Result: Net Operating Income at present rates



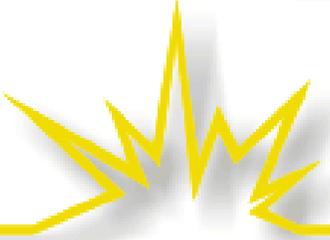
Balance Sheet

- Utility Plant at Original Cost
- Subtract: Accumulated Depreciation
- Add: Working Capital
- Add: Regulatory Assets
- Conservation loans
- Stranded Investments
- Result: Rate Base



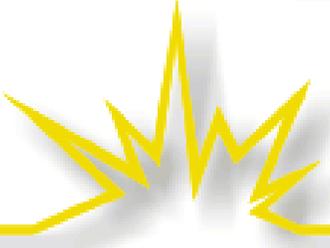
Cost of Capital

- Capital Structure
- Debt, Common Equity, Preferred Equity
- Ratepayer-supplied capital
- Cost of Equity Capital
- Cost of debt capital
- Cost of ratepayer-supplied capital
- Overall Rate of Return



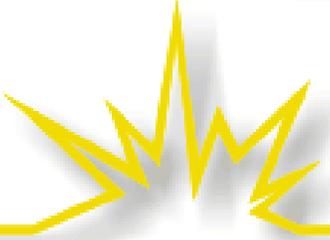
Rate Base x Rate of Return

- = Net Operating Income Requirement
- + Operation & Maintenance Expense
- + Taxes
- = Revenue Requirement



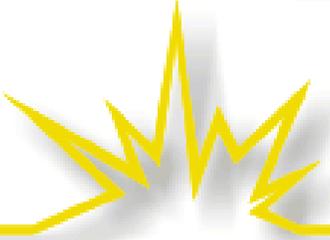
The Revenue Deficiency

- Net Operating Income at present rates
- - Net Operating Income Requirement
- = Net Operating Income Deficiency (or excess)



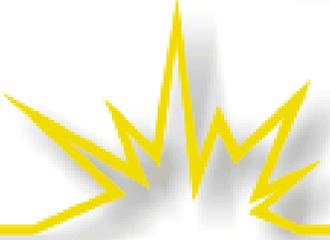
Conversion Factor

- Increased rates means increased taxes
- Must cover NOI deficiency, taxes, revenue-sensitive costs.
- Some are income-related taxes
income-related
- Some are revenue-related expenses
- Divide NOI increase by conversion factor to compute revenue increase



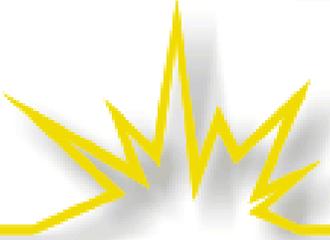
From Costs to Rates

- “Cost of Service” -- Allocate costs between customer classes
- “Rate Design” -- Design rates within customer classes
- Tariff issues -- credit, collection, service response, etc.



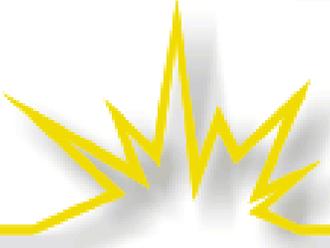
Cost Allocation

- Division of revenue requirement among Residential / Commercial / Industrial customers
- Embedded cost, Marginal Cost, Incremental Cost methods
- Are all classes equally risky to serve?
- Cross-subsidies between classes
- Cross-subsidies within classes



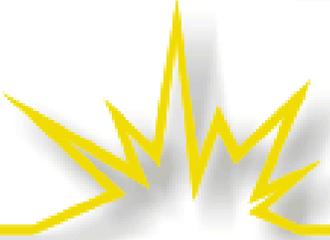
Gradualism

- If subsidies exist, how quickly do you try to eliminate them
- Rate shock -- irate ratepayers
- Impact on low-income consumers
- Public Policy Consideration
 - Industrial development
 - Protection of residential consumers



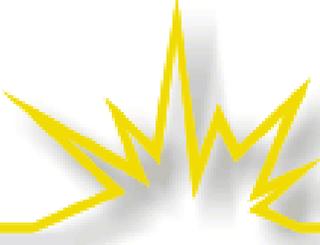
Rate Design Issues

- Residential / Small Business
 - Simplicity, Continuity, Understandability
 - Customer charge; energy charge
 - Inverted Rates / Declining Block Rates
- Large Users
 - Opportunities for real-time savings
 - Time of Day / Seasonal / Demand-based charges



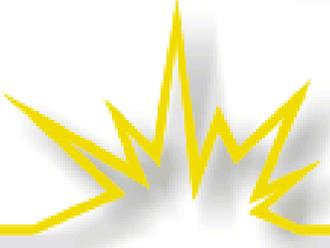
Tariff Rules

- Line extension policies
- Credit, billing, and collection
- Service response
- Repairs, appliance services
- Customer rights and responsibilities



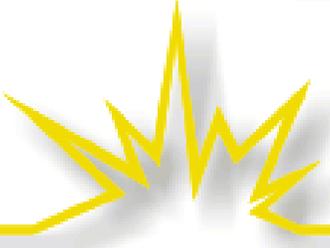
Summary -- Where's the Controversy?

- Adjustments to operating expenses
- Prudence / Used and Useful issues on plant
- Cost of capital
- Cost allocation -- methodology determines winners and losers
- Rate Design -- winners and losers
- Tariff rules - specific interests



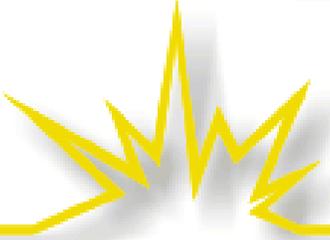
What is a “Test Year?”

- 12 month period used for measuring costs, loads, and revenues
- Can be any 12 month period
- Historical test years
- Future test years
- Normalized



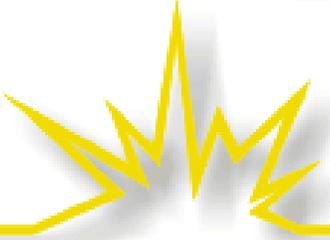
Why Use a Test Year?

- Need to measure costs, loads, and revenues on a common basis
 - Mismatch: New resources, old loads
 - Mismatch: Old resources, new loads
 - Mismatch: New resources, new loads, old revenues



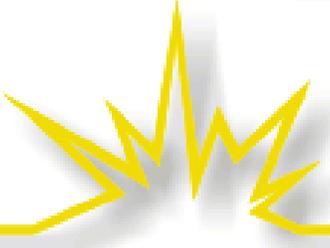
Historical Test Year

- Actual experience for an actual period
 - Actual facilities, labor costs, and taxes
- Normalizing Adjustments
- Pro forma adjustments -- “known and measurable”
 - New facilities, projected fuel & labor costs
- Implicitly assumes growth in revenues = growth in costs



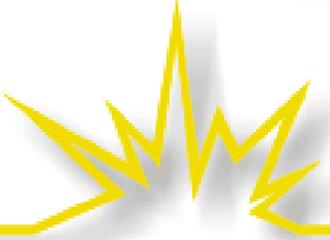
“Normalization”

- “Restating adjustment” --
non-representative data
- Adjust for unusual weather
- Strike during the test year
- Major transmission outage during
the test year
- Major power plant refurbishment
during the test year



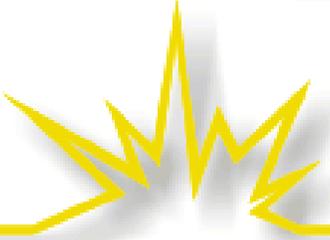
Pro-Forma Changes

- “Known and Measurable”
- Examples:
 - New power plant in service
 - Emission control system will change fuel usage
 - New factory built at end of test year



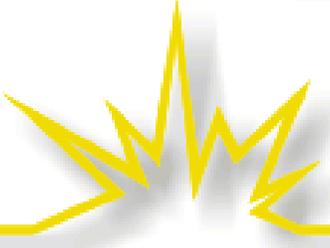
Future Test Year

- Typically a “budgeted” year
 - Future facilities, expenses
 - Assume normal weather and availability
- Adjustments go well beyond “known and measurable”
- Attempt to estimate actual economic environment in which the utility will operate when the rates are in place



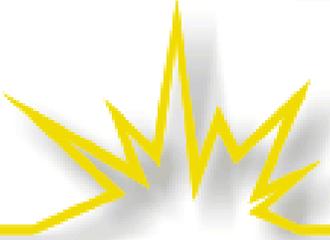
Which Method is Best?

- Historical method is free from manipulation
- If incremental costs close to average costs, historical method is much easier.
- Future test year more appropriate if system growing rapidly, or if incremental costs are very different from average costs



Regulatory Lag

- Once rates are adopted, utility has incentive to control costs
- The longer it takes to change rates, the greater the incentive
- If utility has little or no control, lag may be a punishment
- If utility says out for years, no review of non-price elements of service



Revenues

- Retail sales revenues at current rates
- Restated for non-representative data
- Normalized for weather, etc.
- Add or subtract non-utility revenue
 - rent received from utility property
 - revenues received from affiliates