

Integrated Resource Planning and Ratemaking

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Agenda

- Integrated Resource Plans (“IRPs”)
 - Summary
 - Elements
 - Load Forecast
 - Demand Response
 - Integration and Optimization
 - Staff report
- Ratemaking
 - Revenue Requirements
 - Revenue Requirements Steps
 - Rate Base – Rate of Return
 - Cost of Capital
 - Cost Allocation
 - Revenue Allocation – Rate Design
 - Fuel Adjustment Clause
 - Tariff / Rates
 - Non-Traditional Charges

IRP - Summary

- Related Statutes and Regulations
 - KRS 278.030(3)
 - KRS 273.230(3)
 - 807 KAR 5:058
- Integrated Resource Plan Details
 - Projected load growth
 - Resources
 - Least cost
- Commission Staff Report
 - Analyzes planning process
 - Provides recommendations

IRP - Elements

- Forecast of Projected Load
 - Demand-side and Supply-side resources
 - Least-cost plan for the next fifteen years
- Every three years
 - How energy environment has changed
 - How the utility has modified its plan

IRP – Load Forecast

- Load Forecast
 - Historical and predicted information
 - Demographic information
 - Sales data
 - Economic climate of the region

IRP – Demand Response

- Demand-Side Management
 - Load manipulation
 - Efficiency of its plan
 - Curtail energy demand during heavy load
 - Programs evaluated
 - Results compared
 - High benefits at lowest cost

IRP – Resource Adequacy

- Analysis of Resources
 - Existing units
 - Maintenance / retirement
 - Power purchases
 - Cogeneration
 - Renewable resources
- Diverse Portfolio
 - Greatest efficiency possible

IRP – Integration and Optimization

- Incorporating into a plan
 - Implementation
- Contingencies/assumptions modeled
 - Lowest cost-to-benefit ratio

IRP – Staff Report

- Critiques the utility's plan
 - Makes recommendations
 - Expectations
 - Emphasis on conservation / efficiency
 - Resource portfolio diversity

Ratemaking Methodology

- Rates are to be fair, just and reasonable – KRS 278.030
- Three-step process
 - Determine total allowable revenues – Revenue Requirement
 - Allocate costs to each customer class – Cost Allocation
 - Establish rates and charges, for each customer class, which allow utility to generate that level of revenue – Rate Design

Determining Revenue Requirements

$$RR = O + D + T + (RB \times ROR)$$

RR = Revenue Requirements

O = Operating Expense

D = Depreciation Expense

T = Tax Expense

RB = Rate Base or Total Capitalization

ROR = Rate of Return Authorized (weighted average cost of capital for electric investor-owned utilities (“IOUs”))

Revenue Requirements Steps

- Test Period
 - Historical
 - Forecasted
- Commission reviews test period revenues and expenses, and makes adjustments
 - Normalize
 - Annualize
 - Amortize

Match revenues and expenses to the periods they affect

Revenue Requirements Steps (continued)

- Does the Test Year Expense represent cost that should be included in customer rates?
- Does the Test Year Expense represent reasonable, continuing cost item?
- Items considered in making adjustments
 - Changes in customer composition
 - Abnormal weather conditions that affect usage
 - Non-recurring or out-of-period items
 - Known and measurable cost changes

Rate Base – Rate of Return

- For IOUs, return on Weighted Average Cost of Capital
 - Short-Term Debt
 - Long-Term Debt
 - Cost of Equity (investor-supplied capital)

Cost of Capital (Example)

Capital Structure

(Relative Percentage of Debt and Equity)

Type of Capital		Dollar Amount		Relative Percentage
Debt	=	\$ 400,000	=	40%
Equity	=	\$ 600,000	=	60%
Total Capital	=	\$1,000,000	=	100%

Weighted Average Cost of Capital

Assume: Cost of Debt = 8% and Cost of Equity = 11%

Type of Capital		Relative Percentage		Cost		Weighted Average
Debt	=	40%	x	8%	=	3.2%
Equity	=	60%	x	11%	=	6.6%
Cost of Capital	=					9.8%

Cost Allocation

- Cost Allocation Factors
 - Sales Volumes
 - Number of Customers
 - Peak Demand(s) and Average Demand(s)

Revenue Allocation – Rate Design

- Class Rate of Return
- Moving toward Cost-Based Rates
- Non-Cost Considerations

Fuel Adjustment Clause

- Purpose
- Frequency
- Components
- Example

Tariff / Rates

- Tariffed Rates
- Special Contracts
- EDR Contracts

Non-Traditional Charges

- Demand-Side Management
- Merger Credits