Washington Utilities and Transportation Commission

Cost Allocation Studies

Mission Statement:

The UTC protects consumers by ensuring that utility and transportation services are fairly priced, available, reliable, and safe.

Prepared for the Kyrgyz Republic SEA

Joelle Steward, Regulatory Analyst

WASHINGTON UTC UTILITIES AND TRANSPORTATION COMMISSION

Cost Studies

- Utility costs vary with the customer configuration.
- Costs vary between customer classes depending on:
  - The nature of their demands on the system
  - The facilities required to serve them
  - The pattern in which these facilities are used
- A cost study is an analytical tool that assigns to each customer class the Revenue Requirement incurred to serve those customers.
- Consistent with the Cost Causation Principle.

Cost Studies

- A cost study relates each component of the Revenue Requirement to measurable customer characteristics (customer demand, energy usage, number of customers).
- Studies use data from all facets of operations: accounting records, engineering analyses, resource planning, load research and customer billing.
- Not simple arithmetic exercises; requires judgment by analyst.

Types of Cost Studies

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- Embedded (or Average) Cost Studies: based on historical or projected accounting costs for a test year.
- Marginal Cost Studies: identify the incremental costs associated with unit changes in demand or energy consumption (i.e., the cost of producing the next kWh).
- Time-of-Use: identify seasonal or diurnal periods when system costs are significantly different; typically an extension of another study.

WUTC History with Cost Allocation Studies

- **Cost studies for electric companies required to accompany general rate increases since 1980, pursuant to Federal law.**
- **Commission considered which type of study to rely upon, after public process.**
- **Decided *in favor* of a forward-looking embedded cost method.**
- **Decided *against* the marginal cost method because it may contain more uncertainty.**
- **We do not have administrative rules guiding the preparation of cost studies; instead we look to past commission orders for acceptable and unacceptable practices.**

Major Steps in Embedded Cost Study

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1. Functionalization -- separating expenses and utility plant according to utility function: production, transmission, distribution and administrative/general
2. Classification – identifies the component of utility service being provided: demand, energy or customer
3. Allocation – use of factors that specify each class' share of a particular cost driver, such as peak demand, energy consumed, or number of customers

Typical Classification of Electric Utility Costs

Functions	Cost Classes		
	Demand	Energy	Customer
Production	X	X	--
Transmission	X	X	X
Distribution	X	X	X
Lines/Substations	X	X	X
Services/Meters	--	--	X
Customer	--	--	X

Production Costs

- Costs associated with producing, purchasing power and associated operation and maintenance expenses.
- These costs are roughly 2/3 of the total electric accounting costs.
- Major issues are:
  - Classification as either demand or energy
  - What measure of demand to use

Production Costs Classification

1. Peak demand methods: all fixed costs as demand-related and all variable costs as energy-related
2. Demand and energy weighting methods: portion of plant costs classified as energy-related
   - Average and excess, equivalent peaker, base and peak, peak and average

Production Costs
WUTC Accepted Method

- WUTC has accepted the use of the Peak Credit Method to classify production costs.
- Peak Credit Method estimates the proportion of production cost that is demand-related by dividing ½ the cost of a simple cycle combustion turbine (peak resource) by a combined cycle combustion turbine (baseload resource).
- Result is 87% classified as energy-related and 13% classified as demand-related.

Production Costs Allocation

- Energy-related costs allocated using customer class annual MWhs:
  - Adjusted for losses to generation level for all classes
  - Normalized for weather sensitive loads (residential)
  - Normalized for average hydro conditions
  - May adjust for known load changes
- Demand-related costs allocated by each class's contribution to the system peak:
  - Multiple methods: 1 coincident peak, multiple coincident peak, monthly coincident peak, summer & winter peaks, all peak hours, non-coincident peak
  - WUTC has accepted 200 system peak hours, which reflects planning assumptions for peak plants

Transmission Costs

- Costs incurred for transporting energy from generation to load centers.
- Transmission costs can be rolled-in (treated as one cost group) or subfunctionalized by subsystems.
- WUTC has required all transmission costs be classified as both energy and demand using the Peak Credit Method.

Distribution Costs

- Costs associated with all facilities necessary to connect customers to transmission system.
- WUTC has accepted a Basic Customer Method: treats substations, poles & wires, line transformers as demand (non-coincident) and service drops and meters as customer-related.
- WUTC has rejected the Minimum System method: determines the minimum size system and classifies it as customer-related, the difference in total investment is demand-related.

Other Costs

- These include customer related costs such as meter reading, billing, collections and customer service.
- Also includes administrative and general costs, and joint or common costs which are often allocated on the same basis as general plant or labor ratios.

Parity Ratio Examples

Examples of Parity Ratios Resulting from Cost Study Analyses				
Party	Residential	Commercial	Industrial	Lighting
Staff	96%	115%	84%	133%
Company	96%	118%	88%	136%
Public Counsel	>100%	<110%	<83%	>131%
Industrial rep	87%	130%	105%	144%
Commercial rep	93%	130%	86%	137%

Example of Cost Study Results

	Rate of Return	Revenue to Revenue Req.	Cost to Revenue Ratio
Total	6.85%	94%	104%
Residential	5.85%	90%	106%
Commercial	12.53%	110%	94%
Industrial	3.90%	88%	108%
Lighting	1.52%	74%	121%