

Mission Statement:

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



Washington Utilities and Transportation Commission

Rate Spread and Rate Design Elements

Prepared for the Kyrgyz Republic SEA

Joelle Steward, Regulatory Analyst

Presentation Overview

-
- Rate Spread
 - Rate Design
 - Special Contracts
 - Tariff Requirements

Rate Spread

- WUTC does not strictly apply cost studies to rate spread: “Allocation must depend on principled judgment rather than science.”
- Rate Spread is where Cost Allocation results are combined with policy considerations to develop class specific Revenue Requirements.
- Cost-of-Service is a moving target over time.
- One of the most critical and contested parts of a rate case.

Customer Classes

- Classes reflect generally similar use patterns.
- Five basic customer classes:
 - Residential
 - General Service (commercial & industrial)
 - Large Power Service
 - Irrigation – pumping
 - Lighting – security, street and traffic
- There may be multiple rate structures (tariff schedules) within a class.

Rate Spread – Factors for Consideration

- Conservation impacts – will the rates send a conservation signal?
- Consistency with economic and social goals in the community – is the community trying to attract or discourage additional population? Are tax incentives being offered to attract industry?
- Cost of service – do the rates for each class reflect the cost of providing service to that class?

Rate Spread – Factors for Consideration

- Differential risk – do some customer classes impose greater risks on the utility, possibly causing it to make long-term investments or commitments, without assurance of long-run revenues?
- Economic efficiency – will the rates for each class be based upon the incremental cost of serving load growth in each class?
- Gradualism – are rates for any class being increased so quickly that severe customer impacts may occur?

Rate Spread – Factors for Consideration

- Perceptions of fairness and equity – does any customer class believe that they are being treated unreasonably relative to other classes?
- Revenue stability for utility – can customer classes actually pay the rate assigned them, or will a rate increase force customers in one class off the system, which could mean the utility does not get enough revenue?

Rate Spread Options

For Example:

- Move each class to parity (parity = a class pays 100% of costs to serve that class)
- Move each class half way to parity
- Move each class half way to parity with the constraint that no class's increase is greater than 150% of the average increase and no increase is less than 50% of the average increase
- Increase by an equal percent of revenue

Example

Cost Study to Rate Spread

	Rate Spread of Deficiency from COS	Final Rate Spread of Deficiency	% Increase to Class Rates	% to Average Increase
Total			4.9%	
Residential	84%	54%	5.3%	107.9%
Commercial	-21%	14%	4.1%	84.3%
Industrial	3%	2%	5.1%	104.5%
Lighting	4%	1%	5.1%	104.5%

Cross-Subsidies

- Cross-subsidies may occur both between customer classes and within customer classes.
- Should be justified on policy considerations.
- Interveners inevitably endorse rate spread that attributes more cost to customer classes they don't represent. (Parity is rarely argued in a rate case.)
- Occur between existing and new customers if new customers do not bear the full incremental cost of connecting to the system.
- WUTC has historically preferred to recover fixed costs over volumetric charges resulting in low-use customers being subsidized within their class.

Rate Design

- Creating structures of rates for customer classes that will collect the Revenue Requirement.
- Rate components include fixed charges and volumetric charges (by energy and/or demand).
- Multiple components allow us to relate costs and consumer behavior, resulting in enhanced decision-making for all.
- Cost study elements considered in design.
- Consider capability of meters.
- Consistency of rate structures between utilities is a consideration, but not a priority due to differences in service area characteristics between the utilities.

Attributes of a Sound Rate Structure (in no particular order)

1. Practical attributes of simplicity, understandability, public acceptability and feasibility of application
2. Freedom from controversy in interpretation
3. Effectiveness of yielding total Revenue Requirement under the fair return standard
4. Stability and predictability of revenue
5. Stability of rate structure

Attributes of a Sound Rate Structure (in no particular order)

6. Fairness in apportionment of total cost of service among different customers
7. Avoidance of undue discrimination
8. Efficiency in discouraging wasteful use while promoting justified use
9. Reflection of present and future social costs and benefits
10. Dynamic efficiency in promoting innovation and responding economically to changing usage patterns

(Source: J. Bonbright, Principles of Public Utility Rates, 1961.)

Fixed Charge

- Customer pays regardless of consumption
- Minimum bill vs. Customer charge
 - WUTC has moved away from minimum bill to customer charge for smaller customers
 - Residential customer charge ~\$5-6 per month
- Typically guided by the customer-related allocation (services, meters, meter reading and billing) from the cost study

Block rates for volumetric charges

Goals of rate differentiation may be:

1. More efficient use of scarce resources
2. Increased use of excess resources
3. Equitable allocation of price to follow costs
4. Conservation and environmental concerns

Types of multiple block rates: declining blocks, inverted blocks, time of use, energy per kW demand (load factor rate), demand blocks

Block Rates

- Break points for blocks can be determined from:
 - Class load studies
 - Billing determinant studies
 - Can be politically set (e.g., low income rates)
- Many block rates are designed to recover fixed costs in the 1st block and variable costs in subsequent blocks.
- Average price paid under rate structure varies with load factor: typically reward higher load factors with lower average rates.

Block Rates – WUTC Experience



- History: Saw declining block structures prior to late 1970s; since then, have relied on inverted block structures for electric utilities.
- Purpose of inverted block rates:
 - To equitably allocate the amount of low-cost (hydro) power in 1st block
 - To reflect the actual cost of new resources in the tail block

Consider Customer Impact of Rate Structure

- Bill comparisons to determine if impact is as expected
 - For instance, verify that x% of customers will see a bill impact no greater than or no less than x% of the average
- Consider quantifying anticipated customer response to price signal
 - Elasticity = estimates the change in consumption expected for a change in price ($\% \text{ change in quantity divided by } \% \text{ change in price}$)
 - Example: Oregon has applied to rate change an elasticity factor of -0.172 for residential and -0.11 for commercial
 - Gradual adjustments preferred to the accuracy of elasticities.

Example – WUTC Rates

- Puget Sound Energy has 30 rate schedules:
 - 1 Residential
 - 20 Commercial & Industrial (General Service)
 - Divided by customers receiving service at secondary voltage, primary voltage and high voltage
 - Sub-divided by demand, seasonal irrigation, interruptible, retail wheeling service, back-up power
 - 9 Lighting
 - Divided by company-owned, customer-owned, area lighting, residential & farm area lighting
- Larger customers have less similarity between usage patterns, resulting in more rate structures.

Example – WUTC Rates

Puget Sound Energy Rate Structures				
Rate Class	Limitations	Basic Charge	Demand Charge	Energy Charge
Residential (7)	Residential	\$5.50	none	\$0.0627/kWh for first 600 kWh \$0.07144/kWh over 600 kWh
General Service (24)	2nd Voltage Demand < 50kW	\$5.50	none	\$0.067545/kWh for Oct-Mar \$0.064967/kWh April-Sep
Small Demand General Service (25)	2nd Voltage Demand > 50kW < 350kW	\$24.90	No charge 1st 50kW	\$0.0696/kWh Oct-Mar 1st 20,000 kWh
				\$0.0522/kWh Oct-Mar > 20,000 kWh
			\$6.66/kW Oct-Mar	\$0.0626/kWh April-Sep 1st 20,000 kWh
			\$4.44/kW Apr-Sep	\$0.0522/kWh April-Sep >20,000 kWh
Large Demand General Service (26)	2nd Voltage		\$6.99/kW Oct-Mar	\$0.0476/kWh
	demand > 350kW	\$29.10	\$4.65/kW Apr-Sep	\$0.0011/reactive kvar

Example – WUTC Rates

Puget Sound Energy Rate Structures				
Rate Class	Limitations	Basic Charge	Demand Charge	Energy Charge
Seasonal Irrigation & Pumping (29)	Seasonal pumping only for agricultural use	\$5.50	No charge 1st 50kW	\$0.061/kWh Oct-Mar 1st 20,000 kWh
				\$0.0543/kWh Oct-Mar > 20,000 kWh
			\$6.66/kW Oct-Mar	\$0.0473/kWh April-Sep 1st 20,000 kWh
	2nd Voltage		\$3.28/kW Apr-Sep	\$0.0411/kWh April-Sep >20,000 kWh
Primary General Service (31)			\$6.35/kW Oct-Mar	\$0.0421/kWh
	Primary Voltage	\$200	\$4.23/kW Apr-Sep	\$0.0008/reactive kvar
High Voltage (49)	Delivery > 50kW	none	\$2.79/kVa	
			Minimum 4400 kVa	\$0.0372/kWh
Area Lighting (55)	Dusk-to-Dawn Lighting on Company owned poles		Lamp wattage	Rate per Month (Metal Halide)
			175	\$16.54
		none	250	\$17.87

Special Contracts

- For charges or conditions that do not conform to, or are not addressed in, the company's existing tariff.
- Basis for contract could be alternative power source.
- Each contract must be approved by the Commission.

WUTC rule sets out specific conditions for contract:

1. Must show that contract meets the requirement of law prohibiting unreasonable preference and prohibiting rate discrimination
 - Show there are no other similarly situated customers
2. Demonstrate that contract charges recover all costs for service, including a contribution to fixed costs

Requirements for Tariff Content (WAC 480-80-102)



- Title page
- Index or table of contents
- Legend of Symbols
- Rules section: sets forth conditions governing services under tariff
- Rate Schedule must include:
 - An accurate title of service, availability, rates to be paid, any special terms or conditions.

Other types of rates

- Time of Use
- Interruptible Rates

(To be discussed in next presentation.)