Rate Structures

Mark Beauchamp, CPA, CMA, MBA
President
Utility Financial Solutions
Holland, Michigan
P: 616-393-9722
E: mbeauchamp@ufsweb.com

Objectives

- Fixed cost recovery in rates
- Residential rate structures and impact of tiered-energy rates
- Treatment of pass-through charges
- Consideration of discounts to particular groups of customers
- Rate Design Objectives

Fixed and Variable Costs

- Ideally Rate Structures recover fixed costs through a customer charge and/or demand charge (kW)
- Variable costs, such as fuel or power supply, are recovered through energy (kWh)
  - Ability to recover fixed and variable costs are limited due to metering or billing capabilities and customer understanding of rates

Demand Charges

- Many utilities are moving toward or considering demand charges for all commercial customers
  - Send better price signals to customers
  - Reduce subsidies between customers

Distribution Usage Charges

- Most inaccurate method of distribution cost recovery is through a kWh charge
- Distribution system is constructed to handle a customer's peak demand or a class's peak demands and are not constructed to handle kWh's

Movement Toward Increasing Demand Charges for Distribution Costs Recovery

Method of Distribution Recovery					
Demand Rate	$ 5.90				
kWh Charge	0.0223				
Load Factor	**20.0%**	**30.0%**	**40.0%**	**50.0%**	**60.0%**
Peak Demand	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**
kWh's Used by Customer	**146,000**	**219,000**	**292,000**	**365,000**	**438,000**
Demand Rate	5,899	5,899	5,899	5,899	5,899
Energy Rate	3,259	4,888	6,517	8,147	9,776
Difference	(2,640)	(1,011)	619	2,248	3,877

Example: Inclining Block Rate Structures

Customer Charges	First 500 kWh's	Next 500 kWh's	Excess
$ 10.00	0.08	0.10	0.12

- Rates increase with increased usage
- Shifts fixed cost recovery that should occur in early blocks to outer blocks
- When customers reduce usage they reduce from the outer blocks causing under-recovery of fixed costs

Inclining Block Rate Structures

- Positives:
  - Promotes energy conservation
  - Reducing need for future generating resources
  - Lower cost for low use customers
  - Lowers cost for seasonal customers
- Negatives:
  - Not cost of service based
  - Creates revenue instability for utility
  - Increases charges for year-round rate payers
  - Creates cross-class subsidization between customers

Flat & Declining Rate Structures

Flat

All kWh's are at same price

Negatives:

- Limits price signal to promote conservation

Positives:

- Cost of service based
- Reduces subsidization between customers within a class

Declining

Price per kWh decreases with increased customer usage

Negatives

- Does not promote energy conservation
- Not cost of service based

Positives

- Promotes utility revenue stability

Impacts on Customer Classes

- Movement to full cost of service may result in substantial increases or decreases in certain classes
  - Slow movement toward cost of service may be considered
  - Normally request a bandwidth around the average increase to move classes closer to cost of service targets

Example Movement Toward Cost of Service

Customer Class	COS Results	Proposed 2017 Adjustment	Revenue with 2017 Rates
ResidentialRate-RES	24.0%	3.6%	$ 66,883
General Service GS1Rate-GS1	28.0%	3.7%	18,033
General Service Demand GS2Rate-GS2	2.0%	0.8%	51,360
Primary PRIMRate-PRIM	8.0%	1.4%	19,100
Transmission TRANRate-TRAN	35.0%	4.2%	2,060
Metered Outdoor Lighting OLRRate-PtL	-2.0%	0.6%	279
TOTAL Revenue from Rates		**2.40%**	**$ 157,715**

Stabilizing Distribution Cost Recovery

- Decoupling mechanism
- Customer charge increases
- Movement toward more stable rate structures
  - Demand charges for distribution recovery
  - Recovery on installed kVa transformer capacity
  - Combination of minimum bill and customer charge

Power (Fuel, Energy) Cost Adjustments

- Critical to Maintaining the Financial Stability of Utility
- Important for utility bond ratings
- Has to be implemented properly to reduce or prevent customer complaints
  - Method chosen should limit significant month to month fluctuations
  - Trued up if exceeds 1.0 cent/kWh (Placed in Rate Tariff)
  - If PCA gets high may be unfair to high load factor customers

Decoupling

- Generic term for a rate adjustment mechanism that separates (decouples) an electric utility's fixed cost recovery from the amount of electricity it sells.
- Utilities collect revenues based on regulatory determined revenue requirement
- On a periodic basis revenues are "trued-up" to the predetermined revenue requirement using an automatic rate adjustment
- Actual utility revenues should more closely track its projected revenue requirements, and distribution cost recovery should not increase or decrease with changes in sales

Design of Electric Rates
Balancing Cost to Service with Community Objectives

- Revenue Stability for Utility
- Fairness to customers
- Environmental Objectives
  - Promote and fund energy efficiency programs
  - Promotion of customer installed renewable generation
  - Incentives to promote conservation of electricity
- Economic Development
- Promote growth of system

Social Considerations

- Rate Designs and Impacts
  - Low use customers
  - Low Income customers
  - Year-round customers
- Impacts on customers within each class
  - Substantial changes to a component of the rate design can have substantial impacts

Other Considerations

- Movement toward cost of service based rate structures may result in impacts to low income
- Many utilities are implementing appropriate rate structures to recovery costs and deal with low income using low income assistance rates